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The GREAT Reading Project (Gifted Readers Enhance Academic Talent): a gifted-on-gifted, cross-age tutoring and mentoring intervention

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THE GREAT READING PROJECT
(GIFTED READERS ENHANCE ACADEMIC TALENT):
A GIFTED-ON-GIFTED, CROSS-AGE TUTORING AND MENTORING INTERVENTION

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ABSTRACT

The GREAT (Gifted Readers Enhance Academic Talent) Reading Project is a quasi-experimental, between-group study that evaluated a 13-week before-school student tutoring/mentoring reading and literacy program. The study examined the effects of the intervention on reading achievement for each group involved, including high-ability gifted fifth grade mentors, high-ability gifted first grade protégés, and above-average first grade "Scholastic Academy" protégés. Its primary goal was to improve academic achievement for above-average students in order to help them formally qualify for gifted services. The secondary goal was to promote and assess academic growth for high-ability students already in the gifted program.

Mentor/protégé pairs met 3-4 times per week under the monitoring and supervision of certified elementary school teachers. Student pairs interacted as necessary to accomplish learning tasks such as decoding, fluency, and critical reading skills that promote reading comprehension. Pairs read and discussed picture books, chapter books, children's magazines, and/or assigned books or stories. Some flexibility existed in the program, based on student interest and materials available. Control groups received traditional reading instruction instead of tutoring.

The subjects included above-average and high-ability first and fifth grade students. The treatment group consisted of approximately 20 first graders and 20 fifth graders. First graders and fifth graders were paired for compatibility. A similar sized control group was chosen from other gifted sites. Criterion sampling (qualification to participate in the gifted/talented program in the local public school system) was used to select the treatment and control groups. *The Gates-MacGinitie Reading Tests, Fourth Edition*, a standardized, norm-referenced instrument used to assess reading achievement, was used as a pre- and posttest to assess growth in reading. One-way (for the fifth graders) and Two-way ANOVA (for the 1st graders) was used to determine the effectiveness of the intervention for each group of participants. Surveys were

administered to each grade level of the treatment group to evaluate the social validity of the intervention, in an attempt to determine the social significance or importance of the goals, the social appropriateness of the procedures, and the social importance of the effects or outcomes (the personal benefit) for the participants.

CHAPTER ONE

INTRODUCTION

Gifted education is faced with many important issues, but paramount is the issue of gifted identification. Traditionally, students go through an informal process where their performance is examined in order to search for academic potential. Different school districts have different procedures and attempts are made to find eligible students who can formally qualify for gifted services. Following this informal search, students then go through a more formal procedure where they are administered a norm-referenced, standardized achievement or intelligence test to assess academic ability and potential (Burns, Mathews, & Mason, 1990).

Unfortunately, several flaws in the system tend to overlook certain students. Evaluation instruments used to assess intelligence are sometimes accused of being culturally biased and are said to more heavily evaluate verbal and communication skills (Lee, 1997). Alternative assessment using such strategies as non-verbal intelligence tests, creative problem solving, and project-based assessments has been proposed (Naglieri & Ford, 2005).

Still other school districts see hope in enrichment models for students with academic potential who have not yet qualified for gifted services. Offering pull-out programs once or twice a week and exposing students to advanced content and/or allowing them to explore areas of interest is a common way of addressing the needs of children with academic potential (Vaughn, Feldhusen, & Asher, 1991).

Such programs are often slow to show significant results. But what can be done? In other words, once students are identified as having academic strengths or potential, can anything be done to nurture that potential and bring them up to the next level of achievement, where they can formally qualify for full-time gifted services?

The traditional educational approach to addressing a skills deficit is tutoring. Tutoring has been used to address the needs of a variety of individuals in a variety of settings. Tutoring is often seen as a solution for at-risk students in need of remediation. But tutoring is not so simplistic. Benefits of tutoring have been shown for all ability levels (Fager, 1996; Gest & Gest, 2005; Kalkowski, 1995; Topping, 2005; Wasik, 1997).

Mentoring is another option that has been used for many age groups. It is a widely accepted alternative for gifted students and is frequently used to address the academic and affective needs of high-ability middle and high school students. The most common mentoring model matches an adult professional with middle or high school students, providing them with access to specialized knowledge and learning environments where students can explore fields of knowledge and areas of interest (Shaunessy, 2004).

These two instructional interventions, tutoring and mentoring, are often unavailable to above-average ability elementary students. Tutoring is usually used solely to address below-average students, while mentoring is usually used only for older students. Yet there is such an opportunity here that, sadly, has been underutilized.

The following study used a cross-age tutoring and mentoring intervention aimed at improving the academic performance of students with academic potential. The goal was to help students improve academically in order to formally qualify for gifted services and meet their individual needs. Fifth grade tutors and mentors worked with first grade protégés on reading and literacy tasks. Student pairs were asked to interact as necessary to accomplish learning tasks such as decoding, fluency, and critical reading skills that promote reading comprehension. They were also encouraged to work on collaborative writing assignments and art projects associated with a reading or literacy unit. Pairs were asked to read and discuss picture books, chapter books, children's magazines, and/or assigned books or stories. Mentor students were encouraged to

interact socially in order to meet the affective needs of the protégés. It was suggested that students play board games and have lunch and recess together at least once a week. They were also encouraged to talk and share their views about what it takes to be a good student. Mentors modeled good academic strategies and skills, as well as appropriate behavior, in order to teach protégés what it takes to succeed in school. It was theorized that successful transfer of skills should lead to higher academic performance for the protégés; mentors should also benefit based on metacognitive effects.

By designing this study as a quasi-experimental, between-group intervention, it was possible to evaluate the effectiveness of the tutoring and mentoring program compared with a no-tutoring gifted program and with a no-tutoring, traditional regular educational reading program. In this way, the viability of the intervention as a method of nurturing academic potential was able to be assessed.

The following chapter elaborates further on the rationale for the study, beginning with some key definitions, followed by a description of the research problems. The research questions and the potential impact and originality of the study are also described. Chapter two provides a detailed description of the existing body of research. A detailed description of the methodology used is also included in chapter three. Chapter four discusses the quantitative results of the statistical analysis, along with the qualitative results from the student surveys. Finally, chapter five contains a discussion of the results, along with their relation to previous research. Implications, limitations, the need for further research, and a conclusion are also included in chapter five.

Definitions

Gifted Definition. One major obstacle in the field of gifted education has to do with exactly what giftedness is. There are many definitions of giftedness. Several of these definitions

have similarities, especially concerning the capacity or potential for high achievement in various areas.

The Jacob Javits Gifted and Talented Students Education Act, originally established by Congress in 1988, is the only federal program dedicated specifically to gifted and talented students in the United States (NAGC, 2006). The No Child Left Behind (NCLB) Act of 2002, which is the federal educational program passed by Congress and signed into law by President George W. Bush, reauthorized the Javits Act. NCLB and the Javits Act currently use the following federal definition of gifted and talented:

> Students, children, or youth who give evidence of high achievement capacity in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities. (Title IX, Part A, Definition 22 (2002))

The National Association for Gifted Children defines giftedness as follows: "A gifted person is someone who shows, or has the potential for showing, an exceptional level of performance in one or more areas of expression." (NAGC, 2006)

Genshaft, Bireley, and Hollinger (1995) cite the Columbus Group (1991) in defining giftedness:

> Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally.

The definitions offered by NCLB, the Javits Act, the National Association for Gifted Children, and the Columbus Group all recognize the importance of addressing the needs of gifted and talented youth. The capacities for achievement, the development of capabilities, and the ability to recognize current abilities and/or potential are all important components that should be part of a successful educational program designed to meet the needs of gifted students.

Tutoring. According to Thomas (1993), peer teaching or same-age tutoring is the process by which a competent pupil, with minimal training and with a teacher's guidance, helps one or more students at the same grade level learn a skill or concept. In contrast, cross-age tutoring uses students in a higher grade who work with younger students. However, the term "peer tutoring" often subsumes both cross-age and same-age tutoring. (Gaustad, 1993; Kalkowski, 1995). Other terms often used synonymously include "peer education," "partner learning," "peer learning," "child-teach-child," and "learning through teaching" (Britz, Dixon, & McLaughlin, 1989, p.17).

Mentoring. According to Manning (2005), "Mentoring refers to the well-established tradition of an experienced person taking on an inexperienced person, or protégé, for teaching and training in a chosen field" (p.15). During the mentoring process, the mentor shares information and feedback with the mentee or protégé, acting as an expert teacher, role model, and guide (Clark, 1995; Clasen & Clasen, 1997; Reilly, 1994).

Chan (2000) discusses the value of mentorship programs for gifted students. He states, "In gifted education, mentoring has been regarded as a valuable option for meeting the needs of gifted and talented students whose skills and ability levels are beyond the scope of usual school resources" (p.86). Mentors have been used to address the needs of extremely precocious students, underachievers, learning disabled, economically disadvantaged, and female gifted students.

Chan further describes a traditional mentorship between an adult mentor and a high school student:

> Typically, a mentorship refers to an extended relationship between a professional or a mentor and a student over a period of several months. The student, variously called a protégé, intern, apprentice, mentee, or assistant, is usually a high school student who visits the mentor at the job site to learn first-hand the activities, responsibilities, problems, and lifestyles associated with the mentor's profession.

While Chan notes that mentorships often involve adult professionals providing guidance and expertise to high school students, it is important to note that other mentoring opportunities exist involving younger mentors and protégés.

Gifted Programming Options

Gifted educational programs provide students with educational opportunities that have been adapted and modified to meet students' individual educational needs. This differentiation allows gifted students to improve their skills and abilities. Successful programs enhance academic and creative abilities in children, allowing for greater achievement. It is important for these programs to have a means of identifying students with superior skills and those with potential. Students with potential should be assessed and identified in order for them to gain access to enrichment opportunities that promote intellectual and social growth. By providing these opportunities, gifted and potentially gifted children can begin to approach their true potential. Greater achievement by these talented students could benefit both the individual student and society as a whole.

The types of programming offered to gifted children can take many forms. Often gifted students remain unidentified, and high ability children are stuck in traditional classrooms, where they often go unchallenged. This placement sometimes leads to social or behavioral problems, sometimes meaning that gifted potential goes unrealized.

For those fortunate to have their potential recognized, services might be in the form of *resource* or *pull-out programs*. Students might receive periodic individual or small-group sessions designed to encourage academic achievement and creativity.

A variation of grouping practices, called *cluster grouping*, places a small group of students with individual needs into a primarily heterogeneous classroom (Fiedler, Lange & Winebrenner, 2002). In this grouping option, a small group of high ability students is placed in

the same regular classroom. This cluster of students often works on differentiated content, sometimes covering material at grade level in greater depth or at a faster pace. They may also work on accelerated material that is typically one to two years above grade level. Clustering addresses the need for gifted students to be with their intellectual peers in order to be appropriately challenged and to view their own abilities more realistically (Feldhusen & Saylor, 1990).

Another option would be *grade skipping* (high ability students skip grades and are placed with their academic peers rather than their age peers). While this option often addresses the academic needs of gifted children, some opposition exists because of fears about socialization.

The next programming option is placing students into a *self-contained gifted program*. Self-contained academically gifted programs allow high-achieving students to participate in activities with students similar to themselves (similar academic and age peers). Grouping within this system is usually by grade level, where homogeneous ability level classes are typically located at specific gifted or magnet schools.

Programming options available in a given school system would affect the feasibility of implementing a tutoring and mentoring program for gifted students using cross-age tutoring/mentoring. The optimal setting would be a self-contained gifted program. The existence of self-contained gifted classrooms at a school makes a mentor program feasible because there is a larger pool of older gifted students available to mentor younger gifted protégés. Having mentors and protégés at the same school would provide access and interaction opportunities. Mentoring programs would be much harder to establish in school systems where heterogeneous ability grouping is the case because the small number of academically gifted students are more likely to be distributed throughout a larger number of schools.

Description of the Research Problems

Gifted Identification. One of the greatest challenges faced by the field of gifted education is the challenge of identifying students with potential so gifted services can be provided (Borland, 2004; Masse, 2001; Pfeiffer, 2003). Assessment of potential giftedness is not straightforward and the procedure for assessment varies from school district to school district and from state to state.

The typical procedure involves the informal screening of students after an academic strength is perceived. This informal screening is usually instigated by their teacher. Initial strengths most commonly identified by teachers include reading, math, or problem-solving capabilities. Most often, identification of an academic strength is based on a student's advanced communication and verbal abilities (Goff & Torrance, 1999).

When a student has a demonstrated strength in one or a combination of these areas, a more formal screening is usually in order. Performance scores on standardized tests (if available) are examined, along with report card grades. Past and current teachers are usually consulted, and their comments and recommendations are considered. If the student shows specific strengths and achievement, a formal evaluation instrument such as a norm-referenced, standardized intelligence test is usually administered to identify specific strengths in order to determine whether gifted services are warranted. The criterion typically used to qualify for gifted services is scoring at least two standard deviations above the mean on standardized tests (Sattler, 1992).

The most current versions of popular standardized, norm-referenced, individually administered intelligence tests include the Fourth Edition of the *Wechsler Intelligence Scales for Children* (WICS-IV) (Wechsler, 2003), and the *Stanford-Binet Intelligence Scales – Fifth Edition* (SB5) (Roid, 2003). These tests are the most widely used tests to evaluate general intellectual ability.

Unfortunately, evaluation instruments used for gifted identification are often accused of being culturally biased (Goff & Torrance, 1999; Lee, 1997; Samuda, Kong, Cummins, Lewis, & Pascual-Leone, 1991). Various types of intelligence and talent are not easily identified by IQ tests. Instead, these instruments tend to narrowly assess only a small part of intelligence, specifically verbal and communication skills (Lee, 1997). This often results in the underrepresentation of disadvantaged, minority, and linguistically or culturally diverse populations that qualify for gifted services (Baldwin, 2002; Grantham, 2002; Smutny, 2003).

E. Paul Torrance has written about achievement and identification of children and youth from minority populations growing up in poverty (Goff & Torrance, 1999; Torrance & Sisk, 1997). He noted that gifted and talented children from impoverished backgrounds frequently had difficulty meeting school systems' standards for classification as gifted and talented.

A problem identified by Torrance (Goff & Torrance, 1999) has to do with assessment. Torrance notes that traditionally, assessment procedures to evaluate giftedness put an "extremely high value" on verbal skills. He also notes that generally, children from disadvantaged backgrounds have lagged in their verbal development, "especially the kind of verbal development rewarded most highly by schools and tests of aptitude, achievement, and intelligence" (p.15). He concludes that with the proper guidance and support, and with "adequate and appropriate motivation, economically disadvantaged children can manifest as much gifted behavior as more affluent peers" (p.52). Torrance believes that more children from disadvantaged backgrounds could be identified and motivated to achieve as a result of mentoring. He explains:

> These mentors need to act as talent recognizers, acknowledgers, and developers in supporting the strengths of children and youth from economically disadvantaged backgrounds. We must reject the assumption that focusing on deficiencies will motivate proper behaviors, and instead accept the more realistic belief that giving attention to successful behavior motivates the attainment of potential. (Goff & Torrance, 1999, p.14)

Need for Scientifically Based Gifted Research. A second problem or issue to contend with is the need to develop effective instructional methods and strategies that can meet the needs of gifted children, allowing them to reach their true potential. As part of this challenge, there is a need to test and verify the effectiveness of these methods and strategies. The U.S. Department of Education, through legislation under the No Child Left Behind Act of 2001 (NCLB), calls for the use of scientifically based research in educational programs and for class instruction. National policy by the U.S. Department of Education under NCLB has put significant pressure on colleges and universities to conduct (and approve) scientific research with an emphasis on quantitative methods (using experimental or quasi-experimental research designs) which incorporate testing, treatment, and comparison with a control group (Angrist, 2004).

Unfortunately, there are fewer experimental research studies in gifted education. According to Renzulli (1999), "the majority of research studies [in gifted research] have focused on trait and status characteristics rather than intervention studies and hypothesis-testing research." A possible reason for this disparity could be the type of gifted programming offered by school systems. Most gifted educational services are offered as pull-out or resource programs (Herzog, 2003; Rogers, 2002). When school districts have only a small number of identified gifted students, scattered across many schools, it makes it difficult to conduct empirical research. In school systems with resource programs, studies with treatment groups, control groups, and meaningful sample sizes are difficult to design logistically. In such a setting, the alternative is either to conduct case studies, or to look for other educational settings where more gifted children can be found. This latter alternative usually occurs at colleges or universities through summer enrichment programs for elementary and middle school gifted children. But when the selection of the sample of subjects in experimental research is not done carefully in order to ensure it represents the population as a whole, the external validity of the findings is called into

question (Cresswell, 2002). Research at summer enrichment programs has a high potential for selection problems for several reasons. High SES, non-minority students usually make up a large majority of the participants in this type of research study because of tuition constraints. Proximity is also a factor in such studies. Students in rural areas far away from colleges or universities where summer enrichment programs are held have fewer opportunities to participate. Finally, underachievers and behavior problem students are also less likely to take part. When the maturity and motivation of students affects the likelihood of participation, it is reasonable to assume that some students will be self-selected out of these programs, skewing the results and making the samples non-representative to the gifted population as a whole.

Because of these problems, it is important to find research settings where valid research can take place. Opportunities are needed where innovative methods and strategies can be tested on large enough samples to give results that will allow us to make generalizations to gifted populations as a whole. By conducting empirical research in a large public school district with a self-contained gifted program and comparing the results with a similar control group, a sample can be obtained which better represents the diverse population of gifted students. When this is done, the effectiveness of instructional methods, strategies, and/or interventions can more readily be determined, and the likelihood of being able to generalize the findings to the gifted population as a whole will be improved.

Objective

The basic objective of this research study was to evaluate the effectiveness of the intervention in a methodologically sound way. The intervention, known as the GREAT Reading Project (Gifted Readers Enhance Academic Talent) allowed fifth grade gifted students to act as tutors and mentors to younger protégés (first graders) during reading and literacy activities. During the intervention, gifted students and students with potential had opportunities to learn

valuable skills used by older students similar to themselves. The objective of the intervention was to use modeling, allowing useful reading, literacy, and higher-order thinking skills and strategies to be reinforced and internalized through identification and use during the mentoring process, leading to expected performance gains.

By implementing a cross-age tutoring and mentoring intervention to improve the academic performance of gifted students and students with potential, then comparing students receiving the intervention with a comparable control group who received traditional gifted instructional services, the effectiveness of the intervention was able to be evaluated.

In order for this project to be implemented, several things needed to take place. First, the selection of a suitable site where the research could be conducted was identified. Quality research requires prolonged engagement to collect accurate data. Identification of a school system with a self-contained gifted and talented program provided the opportunity to engage in prolonged and sustained observations and data collection of multiple students. Assessment (using pre- and posttests) was conducted on both the treatment and control groups to get valuable data in order to evaluate the effectiveness of the intervention.

The self-contained gifted program contained classroom situations where opportunities for students with potential were also available. A system for the early identification of students with potential was in place. Such a program often requires less formal, less stringent standards, incorporating alternative forms of assessment to identify students with strengths and academic potential. Such a system also relies more on teacher referral. Within such a system, continued placement is not guaranteed; it is contingent on academic growth and gain of participants. Such a system allows for students with potential to have enrichment opportunities where they can interact with gifted students in the self-contained setting. This interaction has both an academic and a social component.

The goal of providing such opportunities (through the tutoring intervention) was to improve achievement of students with academic potential in order for them to formally qualify for gifted services. A second and equally important goal of the research program was to provide academic opportunities for growth to the mentor and protégé participants who have already been formally evaluated and have qualified for gifted services.

Research Questions

The quantitative research questions for this study investigate whether academic performance improved for the parties taking part in the intervention. The three specific groups of participants involved in the study each have different traits and characteristics (i.e. age and ability level) that might affect the outcome of intervention. Thus, three different research questions were developed to determine any main effect. The first research question was as follows: "Will a literacy mentoring program, where gifted fifth graders provide tutoring and mentoring to gifted first graders, lead to improvements in reading achievement for the gifted first graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?"

A second question examined the effects for students who possess academic potential. It was: "Will a literacy mentoring program, where gifted fifth graders provide tutoring and mentoring to Scholastic Academy first graders (high-ability students with academic potential), lead to improvements in reading achievement for the Scholastic Academy first graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?"

The third question examined any positive effects for the mentors that came about from taking part in the mentoring process. The third research question was: "Will a literacy mentoring program, where gifted fifth graders provide tutoring and mentoring to gifted and high-ability first graders, lead to improvements in reading achievement for the gifted fifth graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?"

A fourth research question investigates whether there was an interaction effect of treatment and ability level for the first graders. The interaction research question was: "Do gifted and Scholastic Academy first graders differ as to which reading instruction is more effective, in terms of reading achievement as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?"

In addition to the quantitative research questions, it was necessary to qualitatively evaluate the social validity of the intervention. Thus, the two qualitative research questions (one for the first graders and one for the fifth graders) are: "What are the first graders' perceptions of the procedures and outcomes of the GREAT Reading Project tutoring and mentoring intervention?" and "What are the fifth graders' perceptions of the procedures and outcomes of the GREAT Reading Project tutoring and mentoring intervention?"

Potential Impact

The goal for most educational interventions is the development of a useful method for improving instruction. The goal of this study was to develop an effective tutoring/mentoring program to help meet the academic and affective needs of gifted students. The potential impact of successful interventions is the ability to replicate the program in similar situations, leading to more efficient and effective gifted education programs, including higher performance for those involved in the study and those who follow.

Tutoring and mentoring programs like the GREAT Reading Project can potentially benefit several groups. First, they can benefit the protégés or mentees involved in such a program by increasing their reading and literacy skills. This can improve achievement, as measured by test scores on standardized achievement tests. The mentors in the program could also benefit through improved metacognitive abilities, better reading and communication skills, and higher performance on standardized achievement tests.

Both the mentor and the protégé should also benefit affectively from the process, forming friendships and social bonds that could last far longer than the program. The promotion of a positive identity for these high ability students new to gifted programming could also have a positive impact, both socially and academically.

A successful intervention such as the GREAT Reading Project can potentially benefit teachers and schools. Behavior problems such as class disruptions and underachievement should decrease, leading to greater time-on-task, reinforcing improved academic performance. Research such as this could also have an additional positive impact. Promising findings from this study might provide the impetus for further research.

Originality of Research and Need for Current Study

The use of tutoring is a well accepted method of meeting the intellectual and affective needs of a variety of individuals (Fager, 1996; Gest & Gest, 2005; Kalkowski, 1995; Topping, 2005; Wasik, 1997). Tutoring has been used to improve performance for all ages, including very young children, adolescents, high school students, college students, and adults.

Mentoring has also been demonstrated to be an effective method for meeting the needs of a variety of individuals, including students and young adults (Brewster & Fager, 1998; Grybek, 1997; Foster, 2001; Jekielek, Moore, & Hair, 2002; Sipe, 1996). More specifically, mentoring has been recognized as a very effective way of differentiating instruction and meeting the diverse needs of gifted students (Bisland, 2001; Clasen & Clasen, 1997; Goff & Torrance, 1999; Grybek, 1997; Manning, 2005; Shaunessy, 2004).

A thorough review (see the Literature Review in the next section for a detailed description) of the existing research has been conducted in an effort to identify similar efforts, including meeting the needs of gifted and potentially gifted students using tutoring and mentoring. Through careful analysis, the need for this research has been assessed. While the

existing research demonstrates that programs and studies have been developed to address the needs of adolescent, high school, and college students through the use of tutoring and mentoring programs, very few tutoring and mentoring studies exist that target younger gifted and potentially gifted students.

In general, the research literature shows that gifted tutoring and mentoring studies have served many needs. In summary, several studies use adult professionals providing academic, personal, and career mentoring advice to high school gifted students (Berger, 1990; Davalos & Haensly, 1997; Gaven & Reis, 2003; Grybek, 1997; Shaunessy, 2004). Other studies have older gifted students (high school or middle school) providing tutoring and mentoring to younger regular education students (Coenen, 2002).

But there is little or no research where a cross-age tutoring/mentoring program is used with upper-elementary gifted students, in order to provide support to younger gifted students, promoting improvements in academic performance and achievement. The field of gifted education recognizes the importance of addressing the needs of potentially gifted and talented regular students, as well as the academic needs of underrepresented groups (Ford, Harris, Tyson, & Trotman, 2002; Hansford, 2003; & Uresti, Goertz, & Bernal, 2002). Since this study was designed to promote the academic achievement of gifted and potentially gifted elementary students, including students from underrepresented groups, this research adds to the existing body of research, contributing something new to gifted education, and possibly providing useful methods and strategies to meet the needs of gifted learners.

CHAPTER TWO

LITERATURE REVIEW

Gifted Identification and Underrepresentation

Gifted identification and underrepresentation have been important issues in the field of gifted education for decades. The task of identifying students with potential is no easy feat. Attempts are made to find eligible students who can formally qualify for gifted services. School systems must come up with a program to evaluate student ability. Procedures for assessment vary from school district to school district and from state to state. In fact, state laws vary widely regarding whether gifted programming is mandated and funded at all (Davidson Institute, 2008).

The traditional identification approach is to begin by informally monitoring student performance and using teacher referrals to identify potential candidates. Following this informal search, students are screened and then go through a more formal procedure where they are administered a norm-referenced, standardized achievement or intelligence test to assess academic ability and potential. Forty-five states use an achievement and/or aptitude test as part of their screening and identification process (Ford, 1998).

One of the greatest challenges of gifted education is the challenge of identifying students with potential so gifted services can be provided (Borland, 2004; Masse, 2001; Pfeiffer, 2003). To address this challenge, school systems need to come up with an effective and equitable system that can identify students with potential from diverse backgrounds.

Yet controversy persists regarding the effectiveness and fairness of the traditional identification process. Evaluation instruments used to assess intelligence are sometimes accused of being culturally biased and are said to more heavily evaluate verbal and communication skills (Goff & Torrance, 1999; Lee, 1997). In addition to the potential cultural bias of the questions themselves, there is also a threat in the way the tests were normed. Many intelligence and

achievement tests have been normed on a sample of predominately (or entirely) white students from a particular region of the country. This norming process calls into question the validity and reliability of the test for minority students (Samuda, Kong, Cummins, Lewis, & Pascual-Leone, 1991). Alternative assessment strategies such as non-verbal intelligence tests, creative problem solving, and project-based assessments have been proposed as an alternative to these threats (Naglieri & Ford, 2005). In this way, the rights and opportunities of culturally and linguistically diverse students can be protected.

Ford, Grantham, & Whiting (2008) discuss gifted recruitment and retention issues of culturally and linguistically diverse students. They point out that underrepresentation of African American, Hispanic/Latino, and American Indian students has been a chronic problem in gifted educational programs for over three decades. Ford (1998) determined that the underrepresentation for these three culturally and linguistically diverse groups was over 40 percent.

A major factor contributing to minority underrepresentation in gifted programs is poor performance on IQ tests. Culturally and linguistically diverse students tend to score at a lower level than their white counterparts on standardized, norm-referenced intelligence tests (Helms, 1992; Miller-Jones, 1989; Naglieri & Ford, 2003). One explanation for this disparity is that the tests tend to be linguistically and culturally biased toward the mainstream, white majority, either because of flaws in the test itself or because of the educational environment, e.g. poor instruction and/or lack of access to high quality educational experiences (Ford, Grantham, & Whiting, 2008; Ford & Harmon, 2001).

Another factor affecting minority underrepresentation is lack of teacher referral. Most students begin the identification process by being referred by a teacher. Yet the preponderance of research indicates that poor IQ test results and low teacher expectations are the main reasons

why African American, Hispanic/Latino, and American Indian students are underrepresented in gifted education (Baldwin, 2005; Ford, 2004; Ford & Grantham, 2003; Whiting & Ford, 2006). By using alternative assessments that minimize cultural bias, and by developing policies and procedures that encourage the inclusion of minority populations, linguistically and culturally diverse students could have greater opportunities to participate in gifted programming.

Bernal (2002) suggests three ways to increase the number of culturally and linguistically diverse students in gifted and talented (GT) programs. He first proposes the recruitment of more minority teachers into gifted programs. He posits that attracting, training, and retaining minority GT teachers will benefit all children in GT programs. Minority teachers will not only serve as role models for culturally and linguistically diverse students, but they will also serve as role models to all the other students, breaking down stereotypes and prejudices that tend to prevail in our society.

Bernal also suggests deliberately and creatively modifying the GT curriculum to ensure the selection and retention of minority students. Bernal states that "to establish a foundation of ethnic diversity in the GT program, the GT curriculum needs to become multicultural" (p.85).

Bernal also suggests developing an effective alternative selection system, while generating data and results that can justify that system. He states that "no meaningful changes in the identification process will take place in the very traditional, very middle-class-based GT programs unless good data can be used to justify the outcomes of an alternative selection system" (p.84).

This strategy of developing an alternative selection system can take the form of identification of traits that are predictors of achievement. Renzulli's Enrichment Triad Model (1978) as well as his Schoolwide Enrichment Model (Renzulli & Reis, 1994) combine the traits of above average ability, high creativity, and high task commitment to identify a talent pool of

students. School districts see hope in enrichment models for students with academic potential who have not yet qualified for gifted services. Pull-out programs, cluster grouping, and similar activities and programs expose students to advanced content and/or allow them to explore areas of interest. This gives them the opportunity to explore and grow, and perhaps to formally qualify for gifted services.

Grouping

The method of grouping for instruction can have a significant impact on the effectiveness of instruction. Different grouping methods include homogeneous versus heterogeneous grouping, as well as whole-class versus small-group or even one-to-one instruction. In a meta-analysis examining the effect sizes of 145 studies focusing on within-class grouping and student achievement, Lou et. al. (1996) concluded that small-group instruction was more effective than whole-class instruction. The study also found that overall, homogeneous ability grouping was more effective than heterogeneous grouping.

According to Lou (1996), "*Small-group instruction* means that a class of students is taught in several small groups; there is often an emphasis on diversity of instruction rather than on uniformity of instruction," (p.425). In order to promote student learning, peer helping is often encouraged in small-group instruction. This emphasis on peer learning changes the role of the teacher, providing additional time and greater flexibility to meet the individual learning needs of each student. It is interesting to note that this idea of flexibility of instruction in order to meet the individual learning needs of students is a cornerstone of gifted education.

Lou also discussed the advantages of homogeneous ability grouping in her meta-analysis. Homogeneous ability grouping allows the teacher to change the pace and level of instruction, permitting high ability students to cover material faster, and/or in greater depth. For low achievers, the teacher can provide repetition and individual remediation. Gifted research supports

this finding. Several studies have shown that gifted students make the greatest gains when grouped with students with similar ability levels (Kulik, 1993; Kulik & Kulik, 1992; Rogers, 2002; Shields, 2002).

Tutoring

Two of Benjamin Bloom's doctoral students, Anania (1982, 1983) & Burke (1984) completed dissertations comparing student learning under three conditions of instruction: Conventional (whole-class instruction with periodic tests for marking students), Mastery Learning (with similar whole-class instruction, plus formative tests, feedback, and corrective procedures, followed by parallel formative tests to determine the extent of mastery), and Tutoring (one-to-one or small group tutoring, followed by formative tests, feedback-corrective procedures, and parallel formative tests as in the mastery learning classes). Comparison of the effectiveness of these three methods showed that one-to-one tutoring was the most effective. In fact, it was discovered that tutored students scored about two standard deviations above the average of the control (conventional) class. In other words, the average tutored student scored higher than 98% of the students in the control class (Bloom, 1984). According to Bloom, "The tutoring process demonstrates that *most* of the students do have the potential to reach this high level of learning," (p.4).

Bloom hoped to identify ways to accomplish similar results that are more practical and realistic than one-to-one tutoring, which is "too costly for most societies to bear on a large scale," (p.4). Bloom dubbed this search for methods of group instruction comparable to the effectiveness of one-to-one tutoring the "2 sigma" problem. Looking at the effectiveness of various group instructional methods, Bloom found that the most effective group instructional method is the Mastery Learning method, which is one sigma, or standard deviation above the average of the control or conventional class. Bloom and his protégés hoped to discover

combinations of alterable variables that together can have as great an effect as one-to-one tutoring. It is interesting to note that 23 years after Bloom's article, educators still search for an effective method of group instruction comparable to one-to-one tutoring.

Sometimes it is useful to reexamine the past and look at things from a different perspective. This study takes a new look at the cost-prohibitiveness and impracticality of one-to-one tutoring mentioned by Bloom—by changing the focus of the tutoring process. Rather than using tutors for remediation of below-average students, the tutoring program targeted students with academic potential in an attempt to facilitate their growth and achievement in order to qualify for gifted services.

Tutoring Options

When one thinks of tutoring, many assumptions may come to mind. One might assume tutoring situations consist of an adult working with an at-risk child one-on-one. One might also think of remediation. But tutoring is not so simplistic. While tutoring often utilizes an adult (often using reading specialists, teachers, college students, or community volunteers), tutoring can take other forms. Successful tutoring programs often utilize students acting as tutors for other students. These "peer tutors" can be used successfully and can also benefit from the experience (Cohen, 1986; Foote & Howe, 1998).

Benefits of Tutoring

According to the research, there are numerous benefits of using one-to-one tutoring. A meta-analysis by Cohen, Kulik, & Kulik (1982) examined the effectiveness of various research studies utilizing tutoring, including cross-age and peer tutoring found positive achievement effects. Numerous tutoring studies have shown positive effects for participants. Tutoring has shown increases in mastery of academic skills, (Fager, 1996; Kalkowski, 1995, Topping, 2005; Topping & Bryce, 2004; Topping & Ehly, 1998). Studies have also shown improvements in self-

esteem and self-confidence (Matthews & Kesner, 2003; McCoach & Seigle, 2003). Tutoring often provides role models and companionship to the tutees, and a sense of pride and accomplishment for the tutors (Gaustad, 1992, Topping & Ehly, 1998). Tutors have also shown gains in self-esteem, confidence, and adequacy as a tutor (Coenen, 2002; Fager, 1996; Gest & Gest, 2005).

Greenwood, Carta, & Hall (1988) identified three commonly cited benefits of peer and cross-age tutoring. These include the learning of academic skills, the development of social behaviors and classroom discipline, and the enhancement of peer relations (p.264). Maheady (1998) analyzed the advantages and disadvantages of peer-assisted learning. He concluded that peer tutoring is an effective instructional strategy, which is often more effective than traditional methods, such as lecture and mastery learning. Peer tutoring allows for more individualization because of the low tutor/tutee ratio.

According to Foot & Howe (1998), peer-tutoring programs have positive social and cognitive effects for many of the participants. Tutors benefit by using organizational and higher-order thinking skills. Repeated exposure often leads to academic gains for the tutor as well (Cohen, 1986). Benefits to the tutees include constant attention, explanation, feedback, reinforcement, and individualized pace of instruction (Coenen, 2002).

Tutoring and Reading – Research, Practice, and Recommendations

The use of one-to-one tutoring within inclusive general education classes in order to individualize instruction can be very effective in preventing reading failure, especially in the primary grades (Wasik, 1998). Using volunteer literacy tutors to provide additional instructional support has shown powerful positive effects for at-risk youth (Elbaum, Vaughn, Hughes & Moody, 2000; Juel, 1996; Morrow & Woo, 2001; Wasik, 1998).

A meta-analysis by Cohen, Kulik, & Kulik (1982) examined the effectiveness of cross-age and peer tutoring and found positive achievement effects for tutoring. It examined the findings of 65 school tutoring programs. The meta-analysis found that 52 of the 65 studies included in the meta-analysis reported results on academic achievement, while 9 reported on self-concept and 8 reported on attitude toward subject matter. In 45 of the 52 achievement studies, the tutored students outperformed the students receiving conventional instruction. The average effect size of the 52 achievement studies was .40; eleven of the 52 showed medium to large effects (eight fell between .50 and .80, four had an effect size of .80 or higher, and one study with the largest gain had an effect size of 2.3). The other studies reported small or trivial effects for the tutees. The eight studies examining attitude toward subject matter had an average effect size of .29, while the nine studies focusing on self-concept had an even smaller average effect size of .09. Clearly, the effect size was much more significant for achievement than for the other two factors.

Barbara Wasik has become a leader in the field of reading education and has written numerous articles on one-to-one tutoring in reading. In a 1997 article, she discussed the studies included in the Cohen, Kulik, & Kulik meta-analysis; Wasik explained that these researchers included all tutoring studies, regardless of subject area, level of tutor training, and amount of time spent tutoring in the meta-analysis. This made it difficult for comparison purposes, in order to separate out the true effects of peer tutoring programs on early reading (Wasik, 1997). Therefore, it is important to look for additional studies focusing on tutoring effects and reading.

An article by Wasik & Slavin (1993) examined one-to-one tutoring programs that have been used to prevent early reading failure. Using what they termed a “best-evidence synthesis,” which combines elements of a meta-analysis and traditional narrative reviews, Wasik & Slavin identified 16 separate studies that examined one-to-one tutoring focused on instruction delivered

by adults to first graders. These studies identified five successful tutoring programs. They include *Reading Recovery*, *Success For All*, *Prevention of Learning Disabilities*, *The Wallach Tutoring Program*, and *Programmed Tutorial Reading*. Each of these five programs used adult tutors, either serving in the capacity as certified teachers, paraprofessionals, or adult volunteer tutors. Those programs that used certified teachers to tutor at-risk first graders (*Reading Recovery*, *Success For All*, and *Prevention of Learning Disabilities*) were more effective than those using paraprofessionals and volunteers (*The Wallach Tutoring Program*, and *Programmed Tutorial Reading*). In fact, effect sizes for studies using *Programmed Tutorial Reading* and the *Wallace Tutorial Program* fell between .20 and .75, while studies using certified teachers (*Reading Recovery*, *Success For All*, and *Prevention of Learning Disabilities*) produced average effect sizes between .55 and 2.37. All five programs showed significant positive effects compared with control group students who received traditional instruction.

In another article, Wasik (1997) discusses funding of future research involving reading tutors which reinforces a point made in the Description of Research Problem section of this paper. In her article, Wasik states: "a specific portion of the money needs to be set aside to develop replicable models and to evaluate the effectiveness of such programs by means of rigorous research designs" (p.287). Wasik's conclusion that scientifically based research is needed in reading education is similar to Renzulli's assertion in gifted education.

Wasik also discusses ways of implementing a successful volunteer tutoring program for reading by outlining eight guidelines (Wasik 1998b, 1999). These include: (a) a certified reading specialist needs to supervise the tutors, (b) tutors need ongoing training and feedback, (c) tutoring sessions need to be structured and contain basic elements, (d) tutoring needs to be intensive and consistent, (e) quality materials are needed to facilitate the tutoring model, (f)

assessment of students needs to be ongoing, (g) schools need to find ways to ensure that tutors will attend regularly, and (h) tutoring needs to be coordinated with classroom instruction.

A study by Gest & Gest (2005) looked at the effects of tutoring for kindergarteners, first, and second graders who were identified as being below average academically and above average in aggressive-disruptive behavior. Following the identification of these at-risk youth, researchers used random selection to assign them into treatment and control groups. The treatment group received one-to-one tutoring from university students acting as paraprofessionals. These tutors took part in a three-hour training workshop, and then were monitored by a trained reading specialist, who monitored tutoring lessons for each tutor at least once a week. Each tutor met for three 30-minute sessions per week with their tutee, using a curriculum with a strong emphasis on decoding skills (phonemic awareness, letter recognition, letter-sound correspondence, phonics-based word study). The curriculum also emphasized the importance of providing opportunities for reading meaningful texts. The control group received traditional, whole-class reading instruction. Reading skills were assessed four times for each group: pre-intervention, mid intervention (6-weeks), post-intervention (12-weeks), and one month post-intervention (16 weeks). Each student was also observed twice weekly during the three-month intervention to assess off-task behavior during instructional time in the classroom. Results showed that most tutored students, regardless of initial skill level, made steady and sustained gains in reading skills, while the non-tutored students made relatively small gains during the same period. There was also a strong correlation between reading skills gains and increased time-on-task.

Young readers have shown important gains through shared activities with older readers. Reading and discussing a story with a partner allows children to acquire reading skills and put reading into a social context (Lamme, 1987). A study by Juel (1991) found at-risk elementary school children showed gains from being read to regularly by college athletes who were at-risk

readers themselves. A similar study by Leland & Fitzpatrick (1993) paired at-risk sixth graders with kindergarteners. This cross-age tutoring program was designed to promote enthusiasm for reading and writing. Upon completion of the project, which lasted from October to June, both groups of students (the 6th grade tutors and the kindergarten tutees) both showed significant improvement in attitudes toward reading, writing, and school. Independent reading for both groups also increased.

In a study by Cobb (2000), college students tutored at-risk fourth grade readers. The study looked at the nature of social interactions within the context of the tutoring process. Specifically, it looked at the role of listening and communication. Findings of the study concluded that successful tutors were skillful communicators who modeled effective listening skills and used purposeful listening to acquire knowledge about the child's special interests, making instruction more meaningful.

In a study by Green, Alderman, & Liechty (2004), fourth and fifth graders were used as cross-age peer tutors to at-risk second grade readers. Tutors were selected by their teachers because of successful behavior and academic accomplishments in the classroom. These tutors were given an initial 45-minute training session in reading fluency. Tutors were trained on how to mark and correct errors as students read, use encouraging words, and list words the tutees incorrectly used as they read. After training, the tutors met with tutees two times per week for 20 minutes over a 10-week period. As the tutees read, the tutors gave corrections for missed words and marked errors made in their notebooks. Following the fluency sessions, the data was analyzed by undergraduate college students trained by the authors of the study. Using a diagnostic-prescriptive approach, the tutees met with these college students each Friday and received tutoring centered on the areas of weakness identified by the cross-age tutors. After the 10-week intervention, the tutees taking part outperformed students from a control group. This

study demonstrated that twice weekly peer tutoring using repeated readings, combined with a once-weekly prescriptive tutoring session by a college student had a positive effect on the reading progress of at-risk second graders. While the study does not allow one to conclude the extent that each factor contributed to the growth, it does demonstrate that fourth and fifth grade cross-age peer tutors were effective in monitoring and collecting reading fluency data that was instrumental in the development of a prescriptive intervention to promote reading achievement.

Douglas & Lynn Fuchs of Vanderbilt University have been instrumental in conducting numerous research studies on peer-assisted learning strategies in reading and math. Some of their earliest studies investigated the effectiveness of tutoring on the reading achievement of at-risk readers (Mathes & Fuchs, 1994; Mathes & Fuchs, 1995; Simmons & Fuchs, 1995). The Mathes & Fuchs 1994 paper reviewed 11 previously conducted studies where peer tutors worked with students with disabilities, concluding that peer tutoring was more effective than typical reading instruction, regardless of setting. In fact, these studies showed significant effects, with an average effect size of .36 over the control groups receiving traditional instruction.

Fuchs, Fuchs, & Burish (2000) discuss how students in public schools have become more diverse due to increased immigration, detracking policies, and inclusion programs. They further discuss the ramifications of such trends. Because most teachers' lesson plans are designed only for the group of children performing at the middle or average level of the class, the educational needs of children above or below this level often go unmet or are inadequate. As a means of addressing the diversity of public school classrooms, they proposed supplementing traditional instruction with collaborative, peer-mediated learning. This instruction pairs learners into dyads (student pairs, with one high-ability, & one low ability student). The teacher can then meet the educational needs of a diverse population of students. The study examined how Peer-Assisted

Learning Strategies (PALS) have been used for grades 2-6 to enhance academic achievement in reading for students with learning disabilities.

The typical PALS reading program for grades 2-6 is composed of 3 types of activities. The first activity is *partner reading*, where each student reads connected text aloud for 5 minutes, which encourages word recognition, fluency, and comprehension. The second PALS activity is *paragraph shrinking*, where reading partners identify main ideas and supporting details after reading a piece of text a paragraph at a time. The third activity is *prediction relay*, which extends paragraph shrinking to larger chunks of texts and requires readers to make and check predictions. Prior to PALS implementation, teachers train students in seven 45-60 minute lessons. Student pairs, or dyads, consist of one higher and one lower performer. The dyads meet for three 35-minute sessions each week, practicing the three types of activities mentioned above.

The effectiveness of PALS programs has been compared with traditional reading instruction. A study comparing the effectiveness of 40 reading teachers compared 20 of them using PALS as an intervention, against using traditional methods of instruction (Fuchs & Fuchs, 1997). Compared with no-PALS instruction, PALS students improved more in reading, regardless of student type (i.e. reading disabled students, nondisabled low achievers, and average achievers). PALS classes outperformed their respective counterparts in the conventional classrooms. Effect sizes were 0.32 for reading fluency and 0.56 for comprehension. While the findings seem to indicate that PALS works for Learning Disabled (LD), low-achieving, and average achieving elementary students (grades 2-6), the effectiveness for high-ability students has yet to be measured.

A later study by Saenz, Fuchs, & Fuchs (2005) seems to address performance by high-ability students in a roundabout way. This study wished to investigate whether PALS could be used to improve the academic performance of English Language Learners (ELL). The authors

chose to see how PALS worked for Spanish-speaking English Language Learners (ELL) in grades 3-6. The primary focus was to examine how ELL students with learning disabilities would respond; the study included 132 native Spanish speaking students of various academic abilities (including Learning Disabled (LD), low-achieving (LA), average-achieving (AA), and high-achieving (HA)). The final results, after some minor attrition, included 10 LD students, 15 LA, 17 AA, and 17 HA, all evenly distributed among 6 PALS and 6 traditional classes. The students were given a pretest to assess reading ability and then randomly assigned to a classroom. The intervention lasted 15 weeks, and was consistent with previous studies (three 35-minute sessions each week).

The results of the 2005 study showed that PALS improved reading comprehension for ELL students, both with and without LD, in transitional bilingual educational classrooms. Specifically, LD students showed growth in reading comprehension by showing an effect size of 1.03, or over one standard deviation better than their control group counterparts. The incidental effects for the low-, average-, and high-achieving students were interesting as well. The LA students had an effect size of 0.86, the AA students had an effect size of 0.60, and the HA students had an effect size of 1.02.

The last effect size, showing the results for the high ability (HA) students, is interesting and relevant to this dissertation study. The high ability students in Saenz, Fuchs, & Fuchs (2005) ELL study showed a similar and significant amount of growth (HA group ES = 1.02) as the Learning Disabled students demonstrated. While the students taking part in the Saenz, Fuchs, & Fuchs study are English Language Learners (ELL), one might speculate whether a peer tutoring program for gifted students could lead to the same degree of growth as has been shown consistently in PALS studies for students with Learning Disabilities.

Mentoring

Literature on the benefits of mentoring illustrates similar positive effects for participants as many tutoring studies. General improvements of academic performance, including higher report card grades and standardized test scores, have been demonstrated for the mentee (Brewster & Fager, 1998; Cragar, 1994; Grossman, 1998; Pringle, Anderson, Rubenstein, and Russo, 1993; Sipe, 1996). Improvements in behavior, self-esteem, and attitudes towards school were also found (Pringle, Anderson, Rubenstein, and Russo, 1993; Sipe, 1996). Students also showed enhanced social, communication, relationship, and decision-making skills (Chan, 2003; Grossman & Garry, 1997; Herrera, Sipe, & McLanahan, 2000; Jekielek, Moore, & Hair, 2002; Lengel, 1989). Mentors showed satisfaction for contributing to others, as well as for opportunities to enhance personal strengths and develop new skills (Chan, 2000; Foster, 2001; Smink, 1990; Tierney & Grossman, 1995).

Mentoring and Gifted Students – Research, Practice, and Recommendations

According to Gardner (1993), there is a developmental nature to the mentoring process for gifted and talented youth. During the youth's early years, mentors should serve as guides and provide encouragement to promote interest and exploration in a particular area of talent. During this stage the goal is informed support. After a level of proficiency has been attained, a mentor who has the ability to teach technical mastery should be found. Gardner also describes the need for emotional as well as technical support during the developmental period of creative breakthrough. During this time, a child's mentoring needs may be met by one person, or may be shared by different people.

Berger (1990) reviewed the literature on mentoring with gifted students and noted the value of mentors for disadvantaged students and for females. She noted that research and case studies often focus on the effects of mentorships in terms of career advancement, particularly for

women. She cites Kauffman's (1981) study of Presidential Scholars and lists having a role model, support, and encouragement as the most frequently stated benefits of mentorships. Kauffman also reiterated the importance of mentorships for gifted girls and noted that for girls who had a mentor, their earning power as adults was more comparable to the earning power of men.

Berger also identified a study by McIntosh & Greenlaw (1990), which states that students from disadvantaged populations may also strongly benefit from mentor relationships. Gains in self-confidence and aspirations are noted, along with a sense of the lifestyle associated with the mentor's profession and the prerequisites (i.e. the education and experience), associated with it. An article by Bisland (2001) discusses the benefits of a mentoring program for gifted students. Mentoring is seen as a way to provide challenge and academic rigor to gifted students in the regular classroom. It has the potential of providing opportunities for children to grow and mature, both academically and socially. Students often show improvements in academic achievement and creativity, while also showing growth in leadership skills. Mentoring programs can provide tremendous opportunities for enrichment, growth, and exploration.

According to the report *National Excellence: A Case for Developing America's Talent* (U.S. Department of Education, 1993), gifted and talented students have the potential of performing at high levels of accomplishment, including the area of leadership. Providing gifted students with opportunities to participate in mentoring programs (as either a mentor to others or as a protégé receiving support from a mentor) can help promote leadership traits.

Mentoring programs targeting gifted students can serve different needs and can involve a variety of participants. Most mentoring programs utilize adult mentors, who provide the support and expertise from specialized fields. Mentors from professional fields allow gifted students access to specialized knowledge that most classroom teachers lack. Other mentoring

opportunities might involve an older student mentoring a younger student. This might take place through a reading program, through tutoring, or through some other scheduled interaction. This can be used effectively for gifted minority students, who often have feelings of isolation and may need role models. Elementary students can be paired with high school or college students with similar backgrounds. This can provide protégés with role models who have shown social and academic achievement and success.

An article by Shaunessy (2004) examined the effectiveness of a mentoring program offered to high school seniors. The article looked at the senior project model and its relation to gifted education. Data from a field study comparing eight North Carolina high schools is examined. Four of the schools had institutionalized senior project programs where students conducted independent study projects involving research papers, product creation, portfolios, and the presentation of final projects. These four treatment schools were compared with four control schools, and were matched based on school size, staff, and various demographic factors. Similarities between this senior project model and various methods recognized as effective for gifted students is noted, including independent study, self-directed learning, and mentorship strategies. The senior project model requires students to select a mentor who is knowledgeable in the area of study chosen by the student. This provided opportunities for students to learn new concepts, skills, and information from experts, giving them access to relevant experiences not available in a traditional classroom. Students were administered a survey about skills learned and reinforced in the students' high school classes. Senior project participants indicated a more positive association with the teaching and reinforcement of the following specific skills than did control school students: writing a research paper, preparing and presenting a speech, carrying out a plan, and conducting interviews.

Shaunessy (2004) cites a similar study (Egelson, Harman, & Bond, 2002), which describes the Senior Project Program at the Southeastern Regional Vision for Education (SERVE), a federally funded research laboratory in Greensboro, North Carolina. SERVE gathered data through surveys about the impact of senior projects from participating students, parents, faculty, and staff. Approximately 1,800 students, 180 parents, 170 faculty members, and 16 senior project coordinators were surveyed. Results indicated that 75% of students agreed or strongly agreed that their writing, research, speaking, planning, and time management skills had improved as a result of participation in the project. Results from parents and senior project coordinators were even higher, with over 80% expressing agreement and satisfaction.

Another study (Davalos & Haensly, 1997) also examines a year-long independent study/mentorship program. The program took place in a major southwestern city as part of a gifted program at the local school district. It was open to junior- and senior-high school students in the gifted program. The Independent Study/Mentorship (ISM) class was a year-long elective which allowed students to conduct in-depth explorations in an area of interest or potential career field. The research portion was guided by a community volunteer mentor with expertise in the particular field of study. Students were also mentored by a certified gifted and talented teacher, who helped with the initial planning and routine monitoring and management aspects of the program. The program served 354 students during the five-year duration of the program.

Davalos & Haensly found that 47% of participants in the Independent Study/Mentorship (ISM) class experienced improvements in self-esteem or self-concept as a specific benefit from the program. Survey results also showed that 45% of students commented on the personal significance of the mentor, referring to them using such terms as guide, teacher, friend, and role model. Respondents also commented on the value of career exploration, with 33% agreeing that the program allowed them to effectively explore a potential career before entering college.

An article by Ambrose & Allen (1994) describes a case study where a highly creative young artist interacts with two mentors in what is known as a triangular mentorship. The first, or primary mentor, worked closely with the protégé providing ongoing intellectual guidance and emotional support throughout high school. The second mentor interacted periodically in a long-distance relationship through letters, phone calls and so on from 2300 miles away. He examined artistic work from the protégé and shared pieces of his own, providing inspiration and insight to the protégé during their mentoring relationship. Over the period of the mentorship, the protégé's metacognitive abilities improved. He felt a greater sense of awareness of his cognitive strengths and thought processes. The protégé also commented on the positive emotional impact he experienced during the mentorship. The sense of acceptance, value, and drive created a sense of inspiration and passion for the artist that allowed him to achieve at a higher level.

Gavin & Reis (2003) mention mentoring as an effective strategy for helping talented girls in mathematics. Societal stereotypes about females often lead to the misguided notion that girls are not as capable as boys in mathematics. These stereotypes, often held by parents, teachers, and peers, can adversely affect the perceptions and performance of female students. The article encourages teachers to provide female role models and mentors to counteract the effects of these stereotypes. This can be done through the identification of historical and present-day female mathematicians. Gavin & Reis also suggest organizing and participating in a career day for females. Female professionals in science, math and technology can conduct hands-on workshop sessions with girls, interacting in positive ways as role models. These sessions could lead to the establishment of mentorship and internship programs.

Grybek (1997) describes several mentoring programs available to gifted students. The first program took place in Tuscaloosa County, Alabama, where gifted elementary school students had the opportunity to work with older individuals through the Retired Senior Volunteer

Program. These volunteers, often retired educators, worked one-on-one with students. Other volunteers were also available to students in the program, such as older students from local high schools and colleges. Students and mentors were paired based on common interests and expertise. Together, they explored topics, with mentors providing protégés with the guidance and support necessary.

The second program described by Gryek is the Executive Internship Program. This program was available in Hillsborough County, Florida. It matched executives and administrators from the area with qualified high school students interested in gaining specialized knowledge in real-world situations. During the program, each intern shadowed their mentor for four days each week in order get a true picture of the demands of the job. Interns also attended meetings and seminars led by the program coordinator, where they discussed business ethics, professional appearance and attitudes. Interns kept journals and read appropriate books during the program. Writing assignments were evaluated, and each intern received a grade from their mentor at the end of the semester based on professionalism, progress, and contributions.

The third program described in the Grybek article was the Laboratory Experience Program, which also took place in Hillsborough County, Florida. Similar to the Executive Internship Program, the Laboratory Experience Program offered real experience to students in a local consulting laboratory. Begun in response to concerns by the lab's director that too many of the new or potential employees knew only theoretical aspects of science, or "textbook chemistry and biology," he wanted to give students the opportunity to learn real-world applications in order to apply the theory they knew to situations beyond what they learned in a classroom.

An article by Schatz (1999) examines two community-based mentoring programs implemented by the Wisconsin Center for Academically Talented Youth. One was a mentor directory for academically talented youth. WCATY compiled a directory of 19 respected

organizations (including area businesses, non-profit organizations, and state agencies) that would welcome young people into the workplace. The directory included information about each opening, as well as characteristics and responsibilities or mentors and protégés. Students also received information about obligations and responsibilities to the mentoring relationship. While WCATY had no supervisory authority over the mentorships that were arranged, it did serve as a source of information regarding the availability of mentoring opportunities. Many of the gifted students involved in the program were able to gain valuable experience in positions where they could establish professional connections, while gaining practical experience in a potential career or educational field.

The second community-based program implemented by WCATY was the Young Scholar Project Program (YSSP). The YSSP was a competitive grant program where 7th- and 8th-grade students compete for $500 grants. The funds were split between the student and a mentor (who received $200 of the grant). These grants allowed students to work on mentor-guided independent study projects during the summer. The Young Scholar Project Program was in its ninth year of offering independent study grants to middle school age children. Feedback from former participants and mentors support the conclusion that short-term and long-term benefits have made a significant difference for these young scholars.

Grybek (1997) also mentions another common mentoring opportunity available to gifted students of all ages. University-based summer programs at local junior colleges and universities often have summer institutes in areas such as art, literature, drama, science, and mathematics. Quite often, students can work on their own in areas of interest with the help of professors, graduate students, and other adults. These programs offer enrichment and informal mentoring opportunities, where elementary, middle, and high school students have the opportunity to gain

specialized knowledge and establish valuable relationships with peers and professionals in their field of interest.

A study by Roper-Davis (1999) describes a mentoring program called "Reaching for the Stars." The program involved senior physics students acting as mentors to gifted second graders. The seniors were paired with the second graders and were given the task of working together to construct and launch a model rocket. The program stresses creativity, higher-order thinking skills, and social interaction. Mentors were to effectively use their communication, leadership, and interpersonal skills to guide the second graders through the process. At the same time, the protégés worked on exercises that emphasized reading and comprehension skills, as well as fine motor and interpersonal skills. As a closure activity, pairs of seniors created a story book to explain one or more of Newton's laws. At the end of the program, students (both mentors and protégés) expressed great satisfaction about the experience. The second graders' teacher also expressed satisfaction with the program, describing how the students really bonded.

While articles abound promoting the benefits of mentoring, one might wonder why mentoring programs are not used more often. Bisland (2001) identifies several negative aspects associated with mentoring programs. The major preventative factor of implementing a mentoring program is money. Administrators might recognize the benefits of a mentoring program, but often find it difficult to allocate funds necessary to staff it with a qualified supervisor to coordinate the program. Other problems identified with mentoring programs include poor program implementation, lack of commitment from mentors, and scheduling conflicts. And finally, a lack of appropriate mentors is also cited as a significant problem.

While most mentoring programs typically involve older mentors (adults from various professions, college students, and even junior- and senior-high school students), little research exists involving elementary gifted students. One article (Curriculum Review, 2004) encourages

the use of younger students as mentors. The article highlights an elementary school in Miami that used third- and fifth-grade gifted students as mentors for kindergarteners. The article stressed how curriculum concepts were also reinforced for the older children during the mentoring process.

In an article by Richter (1998), a program in Pittsburgh, Pennsylvania focused on the use of mentors for elementary students in grades 1-6. The North Hills School District in Pittsburgh hired two itinerant teachers to act as mentors for elementary students reading at least one half year above grade level. These students reading above level were pulled out of traditional reading instruction twice a week (for two fifty-minute sessions), to participate in activities with a mentor. Students had access to quality literature and participated in thematic units, projects, etc. The focus was on enrichment rather than compacting or acceleration. Students received mentoring services focusing on broadened vocabulary, reading comprehension, and study skills. Students also received help in developing self-teaching strategies. Participants expressed increased satisfaction with the program, and the long-term impact is being evaluated.

Manning (2005) describes a model used to implement a cross-age mentoring program which promotes leadership traits for gifted elementary school students. The goal of developing leadership skills is a means of differentiating the curriculum for gifted and talented students in order to meet their cognitive and affective needs. The article describes how a second-grade elementary school teacher implemented a mentoring program, where gifted second-grade students were paired with at-risk kindergarteners for weekly tutoring and mentoring meetings. According to the author, the kindergarten teacher used informal observations and phonics skills assessments to monitor the kindergarten students' academic gains; gains in leadership skills were assessed informally through conferences and observation during the tutoring sessions. Participants expressed excitement and satisfaction for the program. Mentors took their

responsibilities seriously and recognized the importance of being good leaders. Mentors understood the importance of monitoring their protégés performance and behavior, and were able to develop meaningful goals for instructional time. Some even integrated their own instructional materials into the tutoring sessions. At the end of the program, researchers concluded that a successful relationship was forged between the second grade mentors and the kindergarten protégés. Noting the positive interactions between students, researchers concluded it was well worth the time and effort spent developing and implementing the program.

Mentoring, Gifted Identification, and Underrepresentation

E. Paul Torrance (Goff & Torrance, 1999; Torrance & Sisk, 1997) has noted that gifted and talented children from impoverished backgrounds frequently have difficulty meeting school systems' standards for classification as gifted and talented. A study by Sisk, contained in their book (Torrance & Sisk, 1997) describes a large-scale study that examined four locations with high numbers of Hispanic, African American, and Native American (Navajo) students. Prior to the intervention, not one participant met the requirements of their school system's gifted program, and none had even been nominated by a teacher for participation. Following an intervention that stressed motivation, 50% of the participants met the qualifications for gifted and talented services in their respective school system.

Torrance concluded that more children from disadvantaged backgrounds could be identified and motivated to achieve as a result of mentoring. He felt that with the proper guidance, support, and motivation, economically disadvantaged children can manifest as much gifted behavior as more affluent peers.

Wright & Borland (1992) describe a project conducted by Teachers College at Columbia University. Project Synergy was funded by a grant from the U.S. Department of Education through the Jacob Javits Gifted and Talented Students Education Act. Project Synergy was a

research project—its main goal being to "devise and test ways of identifying potentially gifted, economically disadvantaged young urban children and to provide services to identified children, their parents, and their teachers in order to develop the children's potential for giftedness" (p.124). This program used a mentoring program, matching gifted urban minority middle school students with potentially gifted economically disadvantaged kindergarteners from a public school in New York City.

The goal of the project was to provide the kindergarten students with circumstances similar to more common mentoring programs (such as when adult mentors provide guidance and expertise to adolescent and high school students). Adult mentors typically act as role models and familiarize their protégés with activities and knowledge related to their field or profession within a professional setting. Adolescent mentors can act in a similar way, providing instruction and guidance, familiarizing the kindergarten protégés with the day-to-day activities and expectations that allow them to gain success in their area of expertise, i.e. that of an "academically gifted student." By guiding them in the classroom and showing them methods and strategies that could help them succeed, the protégés can show improvements in achievement.

Through the use of a series of alternative assessments (including intensive observation of students in a variety of situations, dynamic assessment, and individual problem-solving sessions), 12 potentially gifted kindergarten students were identified. After identification, students were paired with adolescent mentors from De La Salle Academy, an independent middle school that serves gifted urban students. Mentors received training about the project's goals, mentor duties and responsibilities, as well as information about the backgrounds and needs of the children, and basic strategies for dealing effectively with the protégés. The mentors also were given information about the structure of the kindergarteners' instructional day, as well as information about the various activities that would take place during the mentoring sessions.

During these sessions, the adolescents would provide coaching in some of the basic behaviors used by successful students in school, modeling appropriate behavior in a positive manner.

Mentors spent most of the morning interacting with their protégés, followed by a debriefing session with project team members. Mentors then were to write in journals, writing about the day's session with their protégés. These journals served as a tool for the mentors, allowing them to reflect about the significance of each session and make connections with the goals and objectives of the program. It also served as a valuable source of data for the researchers, allowing them to evaluate the mentorship program. This data could also be useful for current and ongoing research.

Formal evaluation of Project Synergy is difficult to determine without looking at the long-term performance of the kindergarteners taking part in the study. The authors of the study recommend conducting a longitudinal study to determine the effectiveness of the program. Therefore, the only type of evaluation possible at the end of the initial mentorship program is tentative and informal. It is based in part on the successful completion of short-term instructional and behavioral goals for both the mentors and protégés. It is also based on interview and survey data from the participants.

But, based on this data, it is reasonable to conclude that a mentoring program like Project Synergy has had some positive results. For example, project members (e.g. teachers and administrators from participating schools) were very satisfied with the success of the project. Project objectives relating to the establishment of close bonds between the mentors and the potentially gifted kindergarteners were met. Mentors and protégés made strong impressions on each other and each group was eager to resume the relationship. It was also clear that mentors knew their purpose and the extent and importance of their involvement in the project and had

internalized it. Mentors expressed a definite sense of self-worth and kindergarteners' self-esteem was also positively impacted as a result of interacting with their highly regarded older peers.

Researchers were also impressed with the degree of sensitivity and insight exhibited by the adolescent mentors. The information and data provided during the debriefings and from the reflective journals provided valuable information into the lives of the young protégés. The mentors also provided comments about how to make improvements to the program. The authors of the article commented that "the mentors provided an invaluable and otherwise unattainable window into the lives of these young children" (Wright & Boreland, 1992, p.128).

It would be interesting to examine the long-term effects of the young protégés from the Wright & Boreland study. Unfortunately, a follow-up study has not yet been conducted.

Because of the inadequate amount of research focusing on the benefits of tutoring and mentoring for elementary-aged gifted and potentially gifted students, a study on the effects of gifted mentoring, both on reading comprehension skills and on gifted achievement and identification for elementary-aged children, could add to the existing body of research. Based on cross-aged tutoring studies, it is reasonable to assume that mentors and protégés involved in reading and literacy activities will show similar improvement in reading achievement. The intervention in the GREAT Reading Project could lead to improved performance on standardized tests and other evaluation instruments used to identify populations with academic potential who might then formally qualify for gifted services. This could be especially useful for current underperforming students, as well as underrepresented populations within the local gifted program, and could be applied to gifted programs in general.

CHAPTER THREE

METHOD

Timeline for Research and Overview of Methods

Timeline. The program began in September of the 2007-2008 school year. Institutional Review Board approval was secured in the spring of 2007. Referral of qualified students by classroom teachers, along with analysis of other ongoing reading assessment data began in August 2007. The *Dynamic Indicators of Basic Early Literacy Skills*, or DIBELS (Good & Kaminski, 2002) was also given in August 2007. Gifted students and students with potential from regular education classrooms were recruited for the program using DIBELS results and teacher referral. Collection of Informed Consent paperwork for these students was secured in late August and early September 2007.

Following these steps, the Form S version of the Gates-*MacGinitie Reading Tests, Fourth Edition* was administered to the treatment and control groups at each grade level. The sample of first graders was matched with gifted fifth graders. Then the first and fifth grader pairs were involved in student-to-younger student mentoring within a reading program. The aim of this study was to evaluate the effects of mentoring on the academic performance of all students within each of these groups.

The researcher was responsible for collaborating with participating teachers and conducting initial and ongoing training of mentors. These training sessions took place each Monday for the fifth grade mentors. Each training session, along with select mentor/protégé reading sessions, were observed, documented, and reflected upon.

Performance of the first grade protégés and the fifth grade mentors was evaluated by comparing growth over time with similar self-contained gifted classroom students from a control

group, following the administration of Version T of the *Gates-MacGinitie Reading Tests, Fourth Edition* in December 2007.

Final analysis of the study was conducted during the spring and summer of 2008. Statistical analysis and evaluation of all quantitative and qualitative data took place at that time. Findings and conclusions were developed and shared with the committee at this time. After meetings with available committee members, revisions and corrections were made.

Method Overview. The intervention was designed as an Explanatory Mixed Method Design (see Design Section for details).The quantitative component compared reading achievement gains of participants, as measured by gains in raw scores using the *Gates-MacGinitie Reading Tests, Fourth Edition.* The qualitative component evaluated the social validity of the intervention by examining student perceptions of the goals, activities, procedures, and outcomes of the program. Qualitative data such as observations and interviews were also conducted and examined to make changes and modifications to the intervention.

Schools, classrooms, and student participants were selected using a combination of criterion and convenience sampling. Version S of the *s, Fourth Edition* was administered to participating students. The treatment groups participated in a tutoring and mentoring reading and literacy intervention, while the control groups at each grade level participated in a no-tutoring reading and literacy instructional program. After 13 weeks, each group took Version T of the *Gates-MacGinitie Reading Tests, Fourth Edition* as a posttest. Quantitative and qualitative data were collected and analyzed to determine the effectiveness of the intervention.

Samples and Sampling Procedures

Schools. The school participants in this study have several traits in common. All students attend public elementary schools located in an urban school district in a southeastern state of the United States. The treatment and control schools both provide regular and gifted and talented

educational programs to students in separate self-contained settings. Students in the regular education program all attend their home-based or neighborhood school. Each school is classified as an inner-city, Title I school. Gifted students attend the school with a gifted program located closest to their home school. The treatment and control schools each could be classified as low socioeconomic status (SES) because each school has a free or reduced lunch rate near 80% (see . Table 3.1). Each school has a comparable School Performance Score (SPS), based on data from the State Department of Education. SPS scores are based on figures from state standardized test scores and attendance data (see Table 1 for SPS scores by school).

Table 3.1.
School Performance and Population Data

School Name	SPS (School Performance Score)	Gifted and Talented Students	Regular Students	Total Students	Free or Reduced Lunch
Control School 1	79.8*	100	439	539	81%*
Control School 2	70.9*	115	350	465	84%*
Treatment School	93.5*	127	369	496	78%*

*based on 2006-2007 data from the State Department of Education

The gifted and talented program at each school is much more diverse. Since there are only five sites in the urban school district's self-contained gifted program, gifted students are bused to their gifted school site from all over the city. The demographic makeup of students in the gifted and talented program at Control School 1 is 41% Black and 59% Non-Black (primarily Caucasian, Asian, and Hispanic students). The demographic makeup of the gifted and talented students at Control School 2 is 42% Black and 58% Non-Black. The demographic makeup of the gifted and talented students at the Treatment School is 24% Black and 76% Non-Black. Table 3.2 includes demographic data for the control and treatment schools, including the number of students involved in the gifted program, categorized by ethnicity and grade level.

Table 3.2.
Gifted Program Population Data – Control and Treatment Schools

Gifted/Talented Students in Control (Schools 1&2)	African American	White	Other	Total
Pre-K	0	0	0	0
K	3	11	2	16
1st	5	4	6	15
2nd	6	6	1	13
3rd	10	6	1	17
4th	4	8	4	16
5th	13	5	5	23
Total Control School 1	41	40	19	100
Pre-K	0	3	0	3
K	3	4	2	9
1st	4	3	0	7
2nd	8	4	3	15
3rd	7	6	4	17
4th	8	5	1	14
5th	9	13	6	28
Total Control School 2	39	38	16	93
Pre-K	2	7	2	11
K	6	1	0	7
1st	2	6	8	16
2nd	3	4	10	17
3rd	6	11	5	22
4th	7	9	13	28
5th	4	3	19	26
Total Treatment School	30	41	57	127

Gifted Students. Gifted students involved in this study all attend public schools and receive gifted services in a self-contained setting. Students classified as gifted have been formally evaluated and have qualified for gifted services. Typically, students have been individually tested using a norm-referenced, standardized intelligence test. Criteria for qualification for gifted services are usually scoring at least two standard deviations above the mean in Math and/or Reading on standardized tests such as *Woodcock-Johnson III Tests of*

Achievement, the *Wechsler Intelligence Scale for Children-IV* (WISC-IV), or on the *Stanford-Binet Intelligence Scales – 5th Edition* (SB5). Generally, students who score at or above the 90th percentile on the Reading and Math categories of these tests tend to qualify for gifted services.

Each gifted education student is provided with district-issued, grade appropriate textbooks (gifted students typically are provided with textbooks for the next grade in Reading and Math). Gifted and regular education classrooms follow a specific curriculum called the State Comprehensive Curriculum, consisting of specific unit lessons and activities. While gifted classroom teachers are required to cover the content in the Comprehensive Curriculum, they often do not follow the recommended scope and sequence. Instead, gifted teachers often compact the content, use acceleration and enrichment, and provide other differentiated instruction (advanced content and instructional level) to meet the individual needs of gifted children. Following the completion of each English Language Arts and Math unit, all gifted and regular education students take a unit test to determine level of mastery. Completion of these units is done in an attempt to prepare students for state standardized tests in the spring.

Scholastic Academy Students. A program called Scholastic Academy exists within the gifted program of the school system involved in this study. Scholastic Academy is a means of identifying students with academic potential from the regular education program. Student performance is monitored and teachers are asked to help screen and refer students who might eventually qualify for the gifted program.

While many of the students initially screened would not qualify formally for gifted services, efforts are made to provide opportunities for enrichment to help these students improve their achievement. Depending on the strengths and achievement levels of the students in question, some might qualify for pull-out enrichment sessions taught by a certified gifted teacher several hours each week. Others achieving at a somewhat higher level are placed contingently in

a self-contained gifted classroom full-time. Toward the end of the school year, Scholastic Academy students are administered standardized achievement tests to determine whether they have shown enough academic growth to qualify formally for gifted services. Those who don't pass but still have shown good growth and have the persistence and task commitment necessary are allowed to continue to participate in Scholastic Academy for an additional year. Those who have failed to achieve and who show marginal interest or commitment return to the regular education program.

Regular Education Students. The regular education students involved in this study all attend one of the three schools selected for this study. The vast majority of these students are African American (See Table 3.3), and the majority could be classified as living in poverty, as evidenced from the high rate of free or reduced lunch status obtained from the State Department of Education (See Table 3.1). Ninety-six percent of the students in the regular program at Treatment School are African American. Ninety-six percent of the regular students at Control School 1 are African American, and ninety-seven percent of the regular education students at Control School 2 are African American (see Table 3.3). All first grade regular education students are between 6-8 years old. Efforts were made to monitor the performance of these regular education students and screen students with potential to determine if gifted services for them were warranted.

Each regular education student is provided with district-issued, grade appropriate textbooks. Regular education students follow a specific curriculum called the State Comprehensive Curriculum, which consists of unit specific lessons and activities, with a recommended scope and sequence. Following the completion of each English Language Arts and Math unit, all students take a unit test to determine level of mastery. Completion of these units is done in an attempt to prepare students for state standardized tests in the spring.

Teachers. Regular education classrooms are self-contained classrooms, and each first grade classroom in this study was taught by a certified elementary education teacher. The role of the regular education teachers was limited in this study to assistance in locating and screening high-ability students for possible participation as protégés (or their controls), as well as gaining parental and student consent for those selected.

Table 3.3.
Regular Education Program Population Data (by school)

Regular Education Program Demographic Data (by school)	Students from Minority Groups (African American, Hispanic, Asian, etc.)	Non-Minority Students (White)	Total Number of Students in the Regular Education Program
Control School 1	420	19	439
Control School 2	340	10	350
Treatment School	355	14	369

Gifted elementary classrooms are also self-contained classrooms. Each of the first grade and fifth grade gifted classrooms involved in this study was also taught by a certified elementary education teacher. In addition to elementary certification, each gifted teacher has received training in meeting the academic and social needs of gifted students. Gifted teachers in the study have either obtained or are in the process of obtaining their gifted certification and Masters degree. Administrators and district personnel have hired each gifted teacher because it was determined that each teacher met the exemplary standards necessary to teach gifted and talented children.

School Selection/Sampling Strategy. Because of the low number of schools providing self-contained gifted classroom instruction both nationally and locally, and because random assignment from these classrooms to conduct experimental research is difficult and impractical, it was necessary to use non-probability sampling to obtain participants. Criterion sampling was used to identify the schools that provide self-contained gifted classroom instruction. In the urban

school district where the study took place, only five elementary schools participate in the self-contained gifted program. This means that between seven and ten gifted classes exist at each grade level within the school system. Because of the nature of a mentoring program, it is necessary that mentors and protégés be accessible, both to each other and to researchers who needed to make naturalistic observations. Therefore, mentors and protégés were located in the same school. Receptiveness to participation in educational studies by educators and administrators was also a significant factor. In short, convenience sampling was the practical choice for the treatment school. Once the treatment school was chosen, criterion sampling was then used to identify the control schools that were the most similar to the treatment school, both in terms of performance, based on state accountability scores and school demographic characteristics. Consent to conduct the study was obtained from the principals of the treatment and control schools.

Treatment Group Selection/Sampling Strategy. Treatment participants were a sample of first and fifth grade students from Treatment Elementary School, one of the inner-city elementary schools providing self-contained gifted services in the urban school district located in the southeast region of the United States. Using criterion sampling, treatment participants were recruited based on placement within a gifted self-contained classroom (those evaluated and identified as academically gifted) or on admission to the Scholastic Academy program based on perceived academic potential. Scholastic Academy is a resource program for students with academic potential. Participation in the study was also based on availability of students to participate during the intervention sessions. First grade students consisted of gifted and Scholastic Academy students. Fifth grade students all came from self-contained gifted classrooms at the chosen school sites. Teachers administered questionnaires about school and learning preferences to first and fifth grade participants to provide data to match students. Efforts

were made to match mentors to younger students based on similarities, shared interests, and individual learning preference or style. Ability level, personality, gender, and ethnicity were also considered during the matching process.

At the start of the study, convenience and criterion sampling was used to select classrooms from the treatment school in both first and fifth grades for the treatment group. The criterion used was the presence of gifted self-contained classrooms for both first and fifth grade levels. Convenience sampling was based on teacher willingness to participate at the gifted site.

The mentors (Treatment Group 5T) involved in the study were all fifth graders between 9-11 years old and all had been evaluated and identified as academically gifted or were currently members of Scholastic Academy and had been placed in the self-contained program full time based on perceived academic potential. The mentors come from a pool of 28 students enrolled in 2 participating classrooms located within the self-contained gifted program at the treatment school.

The protégés (students receiving tutoring and mentoring services) from the treatment school (Treatment Group 1T) were all first grade students between 6-7 years old and have been either identified as academically gifted or were seen as possessing academic potential. Fifteen of the first grade students received instruction in the single self-contained gifted classroom at the treatment school. Additional children with high aptitude and academic potential were identified from three regular education classrooms, using performance data such as *Dynamic Indicators of Basic Early Literacy Skills*, or DIBELS (Good & Kaminski, 2002) and through teacher referral. They participated with the self-contained gifted students during the intervention sessions, as it was necessary to include them to make the Treatment Group 1T sample size viable.

Gifted Control Group Selection/Sampling Strategy. The selection of the gifted control groups was also based on criterion sampling. The control group (Control Group 5C) used as a

comparison with the mentors (Treatment Group 5T) involved in the study were all fifth graders between 9-11 years old and have also been evaluated and identified as academically gifted or were currently members of Scholastic Academy and had been placed in the self-contained program full time. These fifth grade self-contained gifted students came from a pool of 27 students enrolled in two participating classrooms located in the self-contained, non-tutoring gifted program at the control schools.

Criterion sampling was used to choose the control group classrooms at Control Elementary School, based on school performance scores, demographic data, etc. Attempts were made to ensure performance and demographic similarities between the treatment groups and the control groups. Approximately 20 mentor-protégé pairs (20 first graders and 20 fifth graders) from Treatment Elementary School, and their corresponding 20 first grader and 20 fifth grader comparison groups from Control School 1 and Control School 2 were identified.

Control Group 1C (comparison group of students receiving traditional gifted services in a non-tutoring, self-contained gifted setting) from the control school were all first grade students between 6-7 years old and have been either identified as academically gifted or were seen as possessing academic potential. Fourteen of the first grade students receive instruction in the single self-contained gifted classroom at the treatment school. Additional higher ability/high potential first grade students were sought from three regular education classrooms, using teacher referral and performance data such as *Dynamic Indicators of Basic Early Literacy Skills*, or DIBELS (Good & Kaminski, 2002), if needed to make the Control Group 1C sample size viable. These higher ability (above-average) regular first graders at the control school were used to compare the high ability first graders at Treatment Elementary School who were participating in the tutoring intervention.

Design

The proposed intervention was designed as a quasi-experimental, QUAN/qual study following the Explanatory Mixed Method Design. The Explanatory Mixed Method Design (Creswell, 2002) takes place in two phases: quantitative first and qualitative second. The design places a priority on quantitative data collection and analysis. The qualitative data from the second phase allow one to refine the results of the quantitative data. This method allows for the identification and exploration of typical cases, probing in detail of a key result, or examination of outlier or extreme cases (p.566).

Quantitative Design. The current study is primarily a quantitative, quasi-experimental between-group design, due to the inability to randomly assign participants into experimental or control groups. A pre-test/post-test quasi-experimental design allows for comparison between groups, as well as analysis of academic growth of individual test subjects over time.

In this quantitative study, academic performance records of all sample students were evaluated, such as report cards, reading assessments and standardized test scores. An experimental approach was taken, with the compilation and analysis of quantitative performance and test data. After the pretests were administered to the pool of potential participants, the experimental group was selected using a combination of convenience and purposeful (criterion) sampling. After that, Control Group 1C was matched with the Treatment Group 1T, based on pretest scores. Control Group 5C was also matched with the Treatment Group 5T (the 5th grade mentors). The treatment groups then participated in the GREAT Reading Project intervention, while the control groups received normal reading instruction in a gifted, self-contained setting. The rationale for conducting this research was to assess whether student mentoring had a positive effect on performance for the different categories of participants involved in the study (gifted mentors, gifted protégés, and Scholastic Academy protégés).

The duration of the intervention was from October 2007 to December 2007. At the end of this 13-week period, each group took posttests and the data was analyzed to determine the effectiveness of the intervention.

Qualitative Design. This study was primarily a quantitative study. However, qualitative methods such as observations and open-ended interviews of participants, mentor journaling, as well as interviews with classroom teachers, were conducted throughout the study and were used to monitor the GREAT Reading Project to make necessary changes and modifications. Findings from the qualitative data provided clarity and detail, making implementation more effective and the key results more meaningful.

Another component of the qualitative design centered on the results of two surveys administered after the completion of the intervention. These surveys analyzed the social validity of the program for both first graders and fifth graders. From these finding, the goals associated with the program, along with the activities, procedures, and outcomes were evaluated.

Variables

Definitions. Anderson, Hiebert, Scott, and Wilkinson (1985) defined reading as follows: "Reading is the process of constructing meaning from written texts. It is a complex skill requiring the coordination of a number of interrelated sources of information." (p.7) Durkin (1993) defined reading comprehension as an active, purposeful process in which meaning is constructed through the interaction between reader and text. Cheek, Flippo, & Lindsey (1989) state that "Comprehension is the complex process of understanding the meaning of one word or a series of words presented in oral or printed form. It includes not only the ability to decode words, but also the awareness of their meaning." (p.149)

For comprehension to occur, individuals are often required to use cognitive and higher-order thinking skills to establish meaning. According to Thomas & Thorne (2003),

> Higher-order thinking requires that we do something with the facts. We must understand them, connect them to each other, categorize them, manipulate them, put them together in new or novel ways, and apply them as we seek new solutions to new problems.

Dependent Variable. Reading comprehension and higher-order thinking skills are typically strengths that gifted learners possess and utilize. While these skills are difficult to identify and quantify due to their complex nature, they are key components of reading achievement. The *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4) is a norm-referenced reading achievement test series. Scores from the GMRT are available to assess skills and abilities in basic reading ability, decoding, and reading comprehension. Therefore, the dependent variable of this study was reading achievement, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*.

Independent Variables. The independent variable is the treatment variable. Instructional method was thus the independent variable. Participation in the tutoring and mentoring intervention at the treatment school and participation in a gifted, no-tutoring reading instruction program at the control schools were compared. As part of the intervention, the mentors explicitly modeled effective reading and literacy strategies as part of the tutoring and mentoring process. Students were encouraged to analyze and discuss reading and learning strategies, and metacognitive benefits were expected. (See the description of the intervention in the Procedures Section for further details.)

In addition to instructional method, a second independent variable, ability level, was used in the protégé portion of study. Since the protégés were made up of an equal number of high ability (gifted) students and high potential (Scholastic Academy) students, the differences between these groups was examined. A Two-way ANOVA was used to analyze the effects of type of instruction and ability level.

Context

The setting of the study was within a large urban public school system in the southeast United States. Because there is a major flagship research university nearby, there is a large multicultural/international makeup of students who often qualify for participation within the gifted program. The urban school system is the largest school system in the state and is among the top 75 nationally in student enrollment. It is composed of 94 schools, serving approximately 49,760 students in grades pre-K through 12th grade. It has a self-contained gifted program at five of its elementary schools. These gifted sites are located within inner-city schools with high minority populations. While some of the regular education students from these sites may eventually qualify for gifted services, there is an underrepresentation of certain minority, low SES students within the gifted program.

Procedures

Materials. Various materials and supplies were needed to conduct this study. Testing materials were used during the program, i.e. the test booklets, answer sheets, and the test administration and analysis guide for the *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4). These tests were used as pretests and posttests to assess the effectiveness of the intervention. Other testing materials were also used to evaluate students' qualifications to participate in the program. The costs of testing materials not provided by the school district were covered personally. Because of funding restrictions, the number of students involved from the regular education program had to be limited. While it would have been ideal to test all first and fifth grade students to help identify students with potential, as well as to get a more accurate sample mean for these students, lack of funding prohibited this action. Funding restrictions also affected the purchase of supplemental instructional materials used during the intervention. While this limitation could be seen as a negative, it might actually provide more relevant data, allowing

researchers to examine the effectiveness of using tutors, rather than testing the effectiveness of new instructional materials. It should be emphasized that this study is a starting point, and the results of this study may lead to new research, as well as the continuation and expansion of the current program if the local school system sees merit in the program.

Instruments. The first step of identifying underrepresented populations who might qualify for participation in this study was to use existing assessment data and referrals from teachers to identify higher achieving students. State public schools have adopted the *Dynamic Indicators of Basic Early Literacy Skills*, or DIBELS test (Good & Kaminski, 2002), as a reading assessment instrument for grades K-3. It made sense to use this data, since all first grade students at both the treatment and control schools (including all regular and gifted students) are assessed twice each year, providing DIBELS reading performance data to use as a comparison. The information from this reading assessment instrument offered a means of data triangulation when looking at the pre- and posttest data from the *Gates-MacGinitie Reading Tests, Fourth Edition*.

A description of the DIBELS test comes from two reviews of the test. The reviews were retrieved from the Mental Measurements Yearbook database. The first review was by Bethany Brunsman of Lincoln, Nebraska Public Schools, and the second was by Timothy Shanahan of the University of Illinois at Chicago. According to Brunsman (2005), DIBELS tests Kindergarten through grade 3 students. These students complete three sets of benchmark tests each year—one at the beginning of the school year, one at mid-year, and one at the end of the school year. The benchmarks vary by grade level. DIBELS uses the following benchmark assessments: Letter Naming Fluency (Kindergarten to Grade 1), Initial Sound Fluency (Kindergarten), Phoneme Segmentation Fluency (Kindergarten to Grade 1), Nonsense Word Fluency (Kindergarten to Grade 2), Oral Reading Fluency and Oral Retelling Fluency (Grades 1 to 3), and Word Use Fluency (Kindergarten to Grade 3).

The relevant benchmarks associated with performance of the first grade students involved in this study include Nonsense Word Fluency (NWF), Oral Reading Fluency (ORF), Oral Retelling Fluency, and Word Use Fluency (WUF). Nonsense Word Fluency consists of a page of two- and three-letter nonsense words. The examiner scores the number of correctly pronounced sounds read in one minute. For Oral Reading Fluency, students read a fictional passage aloud and the examiner scores the number of words read correctly in one minute. Oral Retelling Fluency can be used with Oral Reading Fluency to assess the relationship between oral fluency and comprehension. Here the examiner gives the student one minute to retell the details of the reading passage. The score for Oral Retelling Fluency (ORF) is based on the number of words used by the student that indicate understanding of the passage. Finally, Word Use Fluency (WUF) consists of the examiner asking the student to use the word. Students then respond by using the word correctly in a phrase, expression, sentence, or definition. The student's score for Word Use Fluency is a count of the total number of words, including the prompt word, used correctly by the student in one minute.

According to a Mental Measurements Yearbook review of the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS) test by Timothy Shanahan (2005), Professor of Urban Education at the University of Illinois at Chicago, the reliability and validity figures for the various fluency components of the test are as follows: The Word Use Fluency (WUF) was the lowest at .64 for alternate form reliability. The Oral Reading Fluency (ORF) had a .92 alternative form reliability, and a test-retest reliability of .92-.97. When compared with the *Woodcock-Johnson Reading Tests*, DIBELS had strong predictive and concurrent validity. The average concurrent validity coefficient was .80 for ORF and .58 for NWF. Predictive validity coefficients were .66 for ORF and .68 for NWF. There was no concurrent or predictive validity data for WUF.

An additional instrument provided a variety of data for the study. The *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4) was used as a pretest and posttest for the two targeted grade levels involved in the study (first and fifth grade students). It was administered to the regular and gifted education sample students at both the treatment and the control group schools. The results allowed teachers and researchers to assess growth over time and to compare the treatment and control groups after the intervention took place.

According to a Mental Measurements Yearbook review by Kathleen M. Johnson (2005), Psychologist for Lincoln Public Schools in Lincoln, Nebraska, the *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4) is the most recent version of this norm-referenced reading achievement test series. It includes subtests for assessing essential literacy skills based on current research. The test can be administered to groups or individuals; its purpose is to measure the general level of student reading achievement.

The composition of the specific subtests varies by grade level and corresponds to the key skills that are being assessed. The levels assessed, include Pre Reading (PR), Beginning Reading (BR), then levels 1, 2, 3, 4, 5, 6, 7/9, 10/12, and Adult Reading (AR). Detailed discussion of the lowest and highest levels will be omitted here, as they are not pertinent to this study. At level 1, the subtests are Word Decoding (43 items) and Comprehension (39 items). For level 2, the subtests are Word Decoding (43 items, Word Knowledge (43 items), and Comprehension (39 items). The subtests for Levels 3, 4, 5, 6, 7/9, 10/12, and Adult Reading (AR) are Vocabulary (45 items) and Comprehension (48 items).

Levels BR through 10/12 are standardized based on fall and spring testing. Quarter-month norm tables are provided to allow for testing at other times of the year. On-level norms for assessment have been calculated, as well as out-of-level norms which allow for assessment of students with significantly more or less developed skills. Out-of-level norming allows educators

to administer higher level tests for certain groups (for example, Level 6 for fourth or fifth grade high-ability students) and interpret them based on the child's age. Testing takes approximately 100 minutes, which is usually divided into two testing sessions.

Five types of scores are provided for the test results: norm curve equivalent (NCE), percentile rank (PR), stanine, grade equivalent, and extended scale score. These scores are available for each subtest and for total reading for Levels 1 through Adult Reading. Normed testing data come from a nationally representative sample (using stratified random sampling) selected and evaluated in 1998 and 1999. Over 65,000 kindergarten through 12th grade students and approximately 2,800 adults (first-year community college students) participated in the standardization process.

According to the Mental Measurements Yearbook review by Kathleen M. Johnson (2005), reliability estimates indicate strong total test and subtest internal consistency levels with coefficient values at or above .90 for the total tests and subtests at all levels except for AR (Adult Reading). Form S-Vocabulary .88 and Comprehension .89; Form T-Vocabulary .89 and Comprehension .89. Alternative form correlations were at or above .90 at all levels except Grade 9 and Grade 11. According to the reviewer, construct validity is supported by the strong intercorrelations of the subtests and their total test scores.

Testing. I served as the examiner for the administration of all sessions of the *Gates-MacGinitie Reading Tests, Fourth Edition*. Before testing, I familiarized myself with the testing procedures and protocols contained in the testing manual, including requirements for administration and scoring.

I did not take part in DIBELS testing, as I have not been trained in the administration of this test. Three certified teachers (including a reading specialist) administered the DIBELS tests at each of the schools involved in the study.

Testing Fidelity. To ensure fidelity of the assessment procedures, testing sessions were videotaped, and my major professor was given the opportunity to review the administration of each testing session to ensure protocols were followed. I also had a certified teacher present to serve as proctor during testing.

Each educator involved in DIBELS has been trained in the testing procedures and protocols, and each has signed an affidavit attesting fidelity to administration proceduresduring reading assessment. Results of DIBELS assessment have been supplied to me so I could use the data for formative reasons.

Intervention. This research established a student tutoring/mentoring program embedded in reading instruction. This program, called the GREAT Reading Project (Gifted Readers Enhance Academic Talent) consisted of identified gifted fifth graders who acted as tutors and mentors to students within a gifted first grade classroom. Because of the viability of the sample size for first graders at each school, an extension/ modification was to allow regular classroom first grade students with above average reading abilities or potential to take part in the tutoring program with the gifted first and fifth graders. This broadened the scope of the program, including more minority and economically disadvantaged students in the intervention.

The subjects were a small group of first and fifth grader pairs involved in student-to-younger student mentoring within a reading program. The aim of this study was to evaluate the effects of mentoring on the academic performance, specifically reading achievement, of all students involved in the study, including the gifted mentors, the gifted protégés, and the Scholastic Academy protégés.

Teachers and researchers paired mentors and protégés based on interests, personality, learning style, and achievement. Gender and ethnicity were also considered as part of the matching process. Pretest results, as well as data from screening instruments, gifted evaluation

records, report cards, teacher feedback, and observations aided in the pairing. After pairing, participants met regularly over the 13 school week period of the study.

The tutoring and mentoring program was fairly straightforward. Tutors/Mentors met with protégés 3-4 times per week, for 30-45 minutes per session. Students took part in reading and literacy activities. Instructional materials were developed collaboratively by classroom teachers and researchers and were provided to the mentors. Mentor and protégé students were asked to interact as necessary to accomplish the learning task for the day. Activities of the intervention included those involving decoding skills, fluency, and critical reading skills that promote reading comprehension. Specific activities were also selected from the following options. Students could work on collaborative writing assignments. They could also participate by collaboratively drawing a picture or creating an art project that was a summative activity associated with a reading or literacy unit. Pairs read and discussed picture books and/or chapter books, read children's magazines, or read from an assigned book or story. There was some freedom to choose the activity, based on student interest and the materials available through the program. Some activities associated with either student's Individual Educational Plan (IEP), or from the local curriculum, as adapted for gifted and talented children was also an option. Ongoing assessment of various skills, such as written language, listening comprehension, reasoning, and information-processing skills assessed using portfolio and performance-based assessments were also alternative activities. Monitoring of student progress by classroom teachers was conducted and results were shared with researchers on a regular basis. These data helped determine appropriate topics, materials, and methods for future lessons.

In addition to academic activities, each mentor was encouraged to interact socially with his/her protégé. Mentor/protégé pairs were encouraged to play board games, talk about interests and hobbies, etc. They were encouraged to talk about educational experiences, in an attempt to

promote healthy academic and social lifestyles and expectations that would help them succeed in a gifted setting.

Mentors kept a journal. They made daily entries on the days when they met. In those journals, they were encouraged to write about what they did, both academically and socially. These journals were to be turned in to their teachers on a weekly basis. If students wished, they were permitted to share their favorite entries as an introductory activity when they got together. Teachers and researchers analyzed these journals to identify problems and issues to be addressed during the "Breakfast Club" training sessions.

During the planning and training sessions between researchers, teachers, and mentors, specific skills and strategies that were to be taught to the protégés were discussed. Reading strategies, as well as basic and higher-order thinking skills were covered during these weekly planning and training sessions. Mentors also discussed the events and experiences that happened each week, providing opportunities to troubleshoot, giving other mentor peers moral support and advice. Initial strategies and program rules and procedures were created collaboratively by researchers and teachers prior to program implementation and adapted/expanded thereafter, and were reviewed on a weekly basis with mentors as needed.

Fidelity to Treatment. To ensure fidelity during treatment implementation, both whole class and small-group sessions were observed. Instructional sessions where mentors were given initial training and guidance in order to successfully provide tutoring and mentoring to protégés were videotaped. Intervention sessions between selected mentor-protégé pairs were also videotaped in order to analyze instruction. On-task behavior and mentor/protégé interaction was monitored to determine the effectiveness of instructional methods and pairing. In addition to observational data collection in the form of videotaping, sessions also used descriptive and

reflective fieldnotes. Informal open-ended interviews were conducted, including interviews with participating teachers, mentors, and protégés.

Data Collection Plans. There were several important phases involved in data collection. The first phase was to gain Institutional Review Board approval to conduct the study, as well as authorization from the urban school system and consent from the principals and participating teachers at each school. Next was the compilation of the Informed Consent paperwork from the parents and students in order to get permission to conduct the testing and intervention. Once this paperwork was secured, the pretest was administered to both the first and fifth grade students participating in the study to get sample means and baseline data.

Once the treatment and control groups were chosen, the mentors and protégés were paired. After pairing, orientation sessions for the mentors and protégés, and initial training of mentors (including tutoring strategies, as well as methods of positive reinforcement) were conducted. After training, the intervention began. Mentors and protégés met 3-4 times per week for 30-45 minutes per session. The researcher collected a variety of quantitative and qualitative data during these sessions. Various tasks and assignments that could be assessed quantitatively were compiled. Graded practice, quizzes, tests, and writing assignments were considered as options for quantitative assessment. The researcher also consulted with the students' teachers to obtain assessment data relevant to the intervention. State Comprehensive Curriculum survey tests, unit and/or grade level tests, report cards, and IEP objective achievement data were all available to be analyzed.

Weekly training and feedback sessions were held between the teacher(s), researcher(s), and mentors in order to facilitate the process. Quantitative and qualitative data was discussed at this time. Teachers and mentors wrote a reflective summary of these sessions to be used as part of the data collection/data analysis process.

Qualitative data was also collected on a regular basis during this study. Qualitative data will be based on a "changing observations role" model (Creswell, 2002). At times the researcher acted as a non-participant observer, while at others he acted as a participant observer. More precisely, the researcher acted as a facilitator, providing input and feedback when necessary, but remained outside the process as a non-participant observer when possible and practical.

The researcher conducted informal open-ended interviews with mentors and protégés to gain important information that could lead to important changes and modifications to the program. Questions such as: "What book(s) did you read today," "What activities did you do today," "What did you like most/least," and "What problems did you have" all helped identify issues that needed addressing. The researcher also analyzed weekly journal entries kept by fifth grade participants. In addition, periodic observations were conducted of different mentor/protégé pairs to evaluate the effectiveness of the program. Descriptive and reflective field notes were taken to provide information that could be used to develop, evaluate, and refine the program.

Some observations were in the form of video and audio recordings, allowing the researcher to more carefully analyze the data. These observations also allowed the researcher to triangulate the findings by allowing an outside observer to evaluate the session as well. This process also allowed the researcher to reflect upon the session and use the reflections as additional qualitative data.

At the end of the program, all participants were be given an alternative version of the *Gates-MacGinitie Reading Tests, Fourth Edition* as a posttest to assess growth over time. This quantitative data was a key component during data analysis. Students were also given a survey to evaluate the social validity of the program. Qualitative data were analyzed and major themes were identified from the responses.

Credibility/Validity

Threats to internal validity such as history, maturation, regression, selection, mortality, and interactions with selection all needed to be controlled as much as possible (Lincoln & Guba, 1985). While history of the Control Groups 1C and 5C was hard to control because the researcher only dealt with them during the pretest and posttest, Treatment Groups 1T and 5T were more carefully observed. Maturation was controlled by having each group compared with others in the same grade, as well as having participants from Treatment Groups 1T and 5T and from Control Groups 1C and 5C all take part in the same type of setting. Regression was controlled by administering a higher level test to the fifth graders, since they were all either gifted or have demonstrated academic potential, and tend to score approximately two standard deviations above the mean on standardized tests. Selection was controlled because the entire sample qualified as brighter and receptive to treatment, so the treatment effect should be effectively demonstrated. Mortality was a potential problem, especially since there were only twenty mentor-protégé pairs in the treatment group. Additional pairs at each school served as backup pairs in case of participant mortality. Interaction was not a problem, because participants from the Control Groups 1C and 5C were not at the same school as students from Treatment Groups 1T and 5T.

Threats to external validity are problems that threaten the drawing of correct conclusions from the sample data to other persons, settings, and past and future situations. Interaction of selection and treatment is the inability to generalize beyond groups in the experiment. To protect against this threat, treatment group members were chosen to represent the general population as closely as possible. Interaction of setting and treatment is the inability to generalize findings to different settings from the treatment setting. While this experiment takes place in a self-contained gifted public school setting in the Southeast United States, it is important to consider

that generalizability may be limited by type of program (self-contained), by type of educational system (public), by region (State/South), or by a combination of these. A way to address this threat is replication in other settings. The final external validity threat, interaction of history and treatment, can be addressed by replication, varying the time of treatment to determine if timing affects the results.

Statistical validity was addressed by using a between-group quasi-experimental design. Validity was controlled using a pretest and matching, as well as control of variance through One-way ANOVA (for the fifth grade high ability students) and Two-way ANOVA (for the high ability and high potential first grade students).

To ensure credibility for the qualitative component of the study, data collection activities needed to have depth and variety. Persistent observation, prolonged engagement, and triangulation all provide credibility. Examples of triangulation include the following: Data triangulation (having investigators look at a variety of sources of data/information), investigator triangulation (using different researchers while using the same instruments and methods), and methodological triangulation (using both quantitative and qualitative methods to check for similar findings). It was also important to use external checks using peer debriefing. Colleagues and faculty advisors provided this authentication. To ensure transferability of results to another context, replication using purposeful (criterion) sampling could be used when choosing new control and treatment groups.

Data Analysis

To determine the effectiveness of the intervention, it was necessary to assess the reading achievement of the treatment group from Treatment Elementary School. As a comparison, it was also necessary to assess the reading achievement of control sample groups of regular and gifted children not participating in the GREAT Reading Project. Therefore, samples of first and fifth

grade students enrolled in both regular education and the self-contained gifted program at both the treatment school and the control schools from the urban school district were selected and sample groups were assessed at the beginning and end of the intervention. The first and fifth graders were given version S and T of the *Gates-MacGinitie Reading Tests, Fourth Edition* to assess reading achievement (using vocabulary, comprehension and higher-order thinking skills). Sample means for each group and baselines for each individual were gathered. At the end of the intervention posttests using the GMRT were administered to the entire sample to assess any changes in means. Differences between dependent samples (pre- and posttests for individuals) were also evaluated. The *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4) (MacGinitie, MacGinitie, Maria, & Dreyer, 2000) were used as pretests to obtain the various data from the two schools. From this data, treatment group and control group sample means were determined, as well as individual baseline data necessary during data analysis. Similar data were compiled during the posttest.

The experiment uses dependent samples because each participant in both the treatment and the control groups were taking a pre- and posttest, making each individual's pretest and posttest scores dependent. Based on the results of the pretest, it was necessary to match certain students from the treatment and control groups for better comparison. Individuals from the treatment group were matched with individuals from the control group based on scores of the pretest instruments, resulting in between-group dependent sampling.

According to Ary, Jacobs, & Razavieh (1996), analysis of variance (ANOVA) is defined as:

> An inferential statistical test used for experimental designs with more than one independent variable or more than two levels of an independent variable. It is a ratio comparing observed differences to the error term and is used to test hypotheses about differences among two or more groups. (p.564)

To answer the question, "Will a literacy mentoring program, where gifted fifth graders provide tutoring and mentoring to gifted first graders, lead to improvements in reading achievement for the gifted fifth graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?" it was necessary to analyze the pretest and posttest scores of the participants to assess whether there was any growth or change over time. It was also necessary to compare the treatment group's mean scores with the mean scores of the control group.

A One-way ANOVA was used to compare the fifth graders. Since the vast majority of the fifth graders involved in the study can be categorized as gifted, and because there are two types of instruction to be compared, a One-way ANOVA was used. The independent variable category was the method of reading instruction. Tutoring Instruction is the type of reading instruction for the treatment group. Treatment Group 1T and 5T students participated in the tutoring intervention during part of the allotted reading instructional time 3-4 times per week, and received reading instruction from the normal reading teacher the remaining time each day. Control Group 1C and 5C students received traditional reading instruction without tutoring from the normal classroom teacher.

The first grade participants had two independent variables. The first independent variable was type of reading instruction. Level a_1 was the tutoring reading instruction and a_2 was traditional reading instruction without tutoring from the normal classroom teacher. The second independent variable classification (level b) was based on ability level. There were two ability levels in the first grade samples. Level b_1 was high ability students who had been formally identified as gifted. Level b_2 was above average students who took part in the Scholastic Academy academic enrichment program.

The same comparison procedure is also necessary to analyze the data relating to the question, "Will a literacy mentoring program, where gifted fifth graders provide tutoring and

mentoring to gifted first graders, lead to improvements in reading achievement for the gifted first graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?" as well as the question "Will a literacy mentoring program, where gifted fifth graders provide tutoring and mentoring to Scholastic Academy and high-ability regular education first graders (high-ability students with academic potential), lead to improvements in reading achievement for the Scholastic Academy first graders, as measured by performance on the *Gates-MacGinitie Reading Tests, Fourth Edition*?" These two questions can be combined into one Two-way ANOVA since all of the students are first graders. The resulting Two-way ANOVA would be a 2x2 comparison, as shown in Table 3.4. The treatment and control groups for the first graders were made up of gifted and Scholastic Academy (high-ability regular education) students.

Table 3.4.
First Grade Two-Way ANOVA

	Level a_1 Gifted (high ability)	Level a_2 Scholastic Academy (high potential)
Level b_1 Treatment Group 1T		
Level b_2 Control Group 1C		

After the completion of the research study, participants were given a survey to determine the social validity of the intervention. The surveys consisted of both closed and open-ended questions. After this qualitative data was collected, it was analyzed and coded in an attempt to identify themes associated with the central phenomenon.

Qualitative data such as fieldnotes consisted of both descriptive and reflective notes. Audio and/or videotapes were analyzed using these two categories. Findings from these sources, mentor journals, along with meetings and interviews with classroom teachers and students, were

used to modify the training program and the materials available for the intervention. The primary objective of gathering and analyzing this qualitative data was the development and refinement of the intervention. This qualitative data provided context and meaning to the success and social validity of the tutoring intervention Qualitative data such as field notes consist of both descriptive and reflective notes. Audio and/or videotapes were analyzed using these two categories. Findings from these sources, mentor journals, along with meetings and interviews with classroom teachers, were used to modify to the training program and the materials available for the intervention.

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CHAPTER FOUR

RESULTS

First Grade Quantitative Results

Results are presented comparing first grade reading achievement under the GREAT Reading Project's tutoring/mentoring intervention versus the control groups' traditional reading instruction. First graders participated in the intervention by receiving one-on-one instruction from fifth grade tutors. A two-way ANOVA was performed to compare the effectiveness of the method of instruction (tutoring vs. traditional) for two ability groups (gifted vs. Scholastic Academy) of first graders. Reading achievement was measured by the *Gates-MacGinitie Reading Test, Fourth Edition* (GMRT–4). The between-group main effect was tested to determine which instructional method was more effective, and the data were also analyzed to determine any interaction effect. Eta squared, a measure of explained variance, was computed to determine effect size. Cohen (1988) describes the effect size as measured by Eta squared as ranging from 0 to 1. He describes $\eta^2 = .01$ as small, $\eta^2 = .06$ as medium, and $\eta^2 = .14$ as a large effect size.

Table 4.1 presents the pretest and posttest means and standard deviations for the GREAT treatment group and the control group. Based on the pretest results, there was no statistically significant difference between Instructional groups prior to treatment, $F(1, 42) = .01$, $p > .05$, $\eta^2 = .00$. There was a significant difference in ability groups, $F(1, 40) = 16.22$, $p < .05$, $\eta^2 = .31$. There was no significant interaction between instruction and ability group, $F(2, 40) = .06$, $p > .05$, $\eta^2 = .00$.

The posttest means and standard deviations for the treatment and control group are also shown in Table 4.1. Based on posttest results, there was not a significant main effect for instructional treatment, $F(1, 40) = 1.08$, $p > .05$, $\eta^2 = .03$. Differences were significant between

ability groups, $F(1, 40) = 14.87$, $p<.05$, $\eta^2 = .29$, and no significant interaction effect between instructional method and ability level occurred, $F(2, 40) = .00$, $p>.05$, $\eta^2 = .00$.

Table 4.1.
First Grade Pretest and Posttest Results

Test	Treatment Group 1T			Control Group 1C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Pretest						
Gifted	71.18	11.38	11	71.91	10.80	11
SA	54.00	15.44	9	52.56	19.25	9
Total	63.45	15.66	20	63.20	17.75	20
Posttest						
Gifted	78.82	2.23	11	74.91	8.10	11
SA	64.67	13.26	9	61.00	18.05	9
Total	72.45	11.35	20	68.65	14.90	20

Because of the dependent nature of testing over time, gain scores (posttest – pretest) were examined. Gain score means and standard deviations can be found in Table 4.2. Figure 4.1 also shows a comparison of mean gain scores for the gifted and Scholastic Academy students from the traditional and tutoring groups. Gain results indicate there was not a significant difference in the main effect for instruction treatment, $F(1, 42) = 2.01$, $p>05$, $\eta^2 = .05$. There was no significant difference in ability groups, $F(1, 40) = 3.08$, $p>.05$, $\eta^2 = .08$. There was no significant interaction between instruction and ability group, $F(2, 40) = .25$, $p>.05$, $\eta^2 = .01$

Gifted populations tend to test at the extreme (high) end of the spectrum on achievement tests, and there is a statistical tendency for random deviation towards the mean (known as

regression towards the mean) when gifted students take a posttest. Another important statistical anomaly also affects the evaluation of programs aimed at gifted students. According to Beggs, Mouw, & Barton (1989), "the so-called "ceiling effect" occurs when a gifted student scores at the top of the score scale or receives a perfect or near-perfect score on a preassessment test" (p.74). Students might well make progress, but evaluation of the magnitude of the gain may be difficult to detect.

Table 4.2.
First Grade Gain and PercentDelta Results

Test	Treatment Group 1T			Control Group 1C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Gain						
Gifted	7.64	9.63	11	3.00	5.00	11
SA	10.67	5.98	9	8.44	8.79	9
Total	9.00	8.14	20	5.45	7.31	20
PercentDelta						
Gifted	.5899	.2914	11	.0064	.7911	11
SA	.4208	.2275	9	.2812	.3885	9
Total	.5138	.2719	20	.1366	.6323	20

After analyzing the situation, I consulted with a statistician from the Department of Experimental Statistics to explore the options available. Together, we posited that because of the tendency for regression towards the mean, as well as the limited possible gains in raw scores due to the ceiling effect, there was a need to analyze the posttest scores based on percentage of possible gain. Referred to as PercentDelta, these scores were calculated by dividing the gain

(posttest – pretest) by the difference between the maximum score and the pretest score. This value linked the two dependent test scores, while mitigating the ceiling effect (see Figure 4.2).

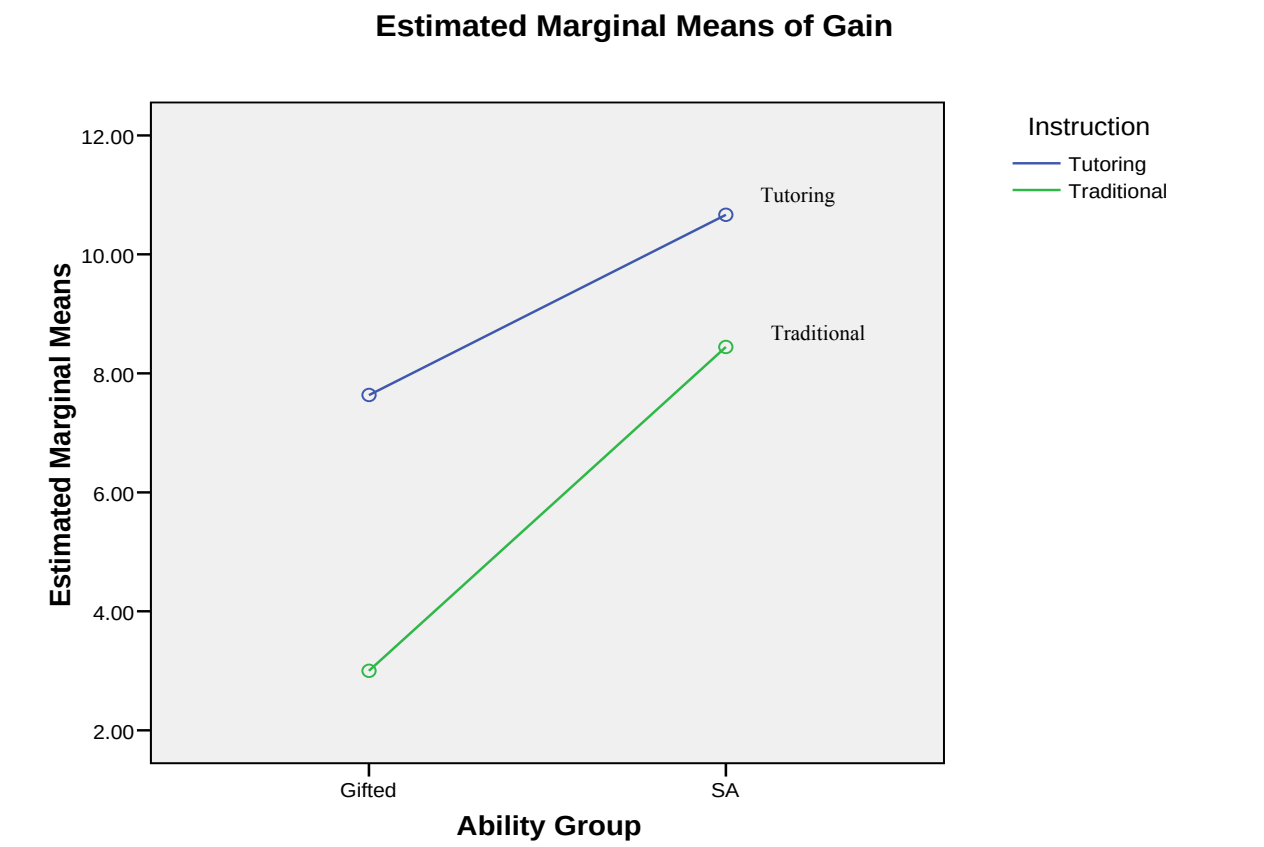

Figure 4.1. Estimated marginal means of gain by instructional method and ability group.

The PercentDelta group means and standard deviations for the treatment and control group can be found in Table 4.2. PercentDelta results indicate there was a significant main effect for instruction treatment, $F(1, 42) = 5.47$, $p<.05$, $\eta^2 = .14$. There was no significant difference in ability groups, $F(1, 40) = .12$, $p>.05$, $\eta^2 = .00$. There was no significant interaction between instruction and ability group, $F(2, 40) = 2.06$, $p>.05$, $\eta^2 = .06$.

A lack of any interaction effect, as well as the change from significant to insignificant differences in ability groups when examining different (pretest, posttest, gain, and PercentDelta) statistics warrants analyzing the ability groups separately to look for any dilution effects that

would bias the data. Therefore, the ability groups were disaggregated and run as separate one-way ANOVAs using the gain and PercentDelta data.

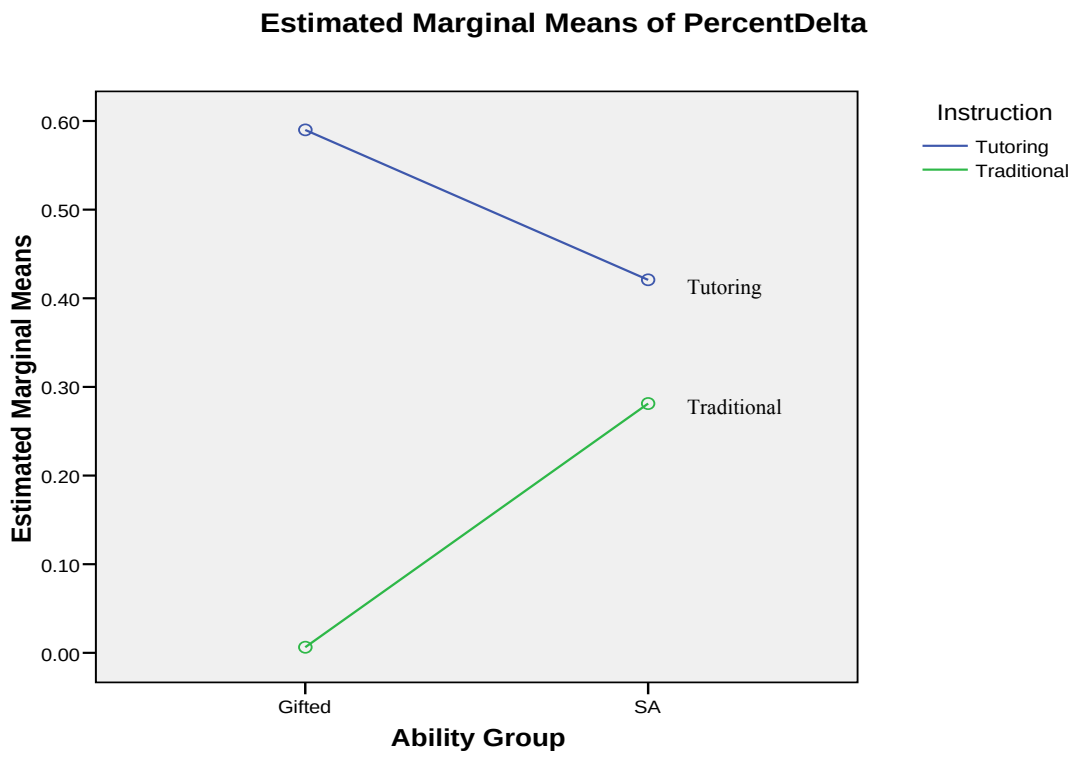

Figure 4.2. Estimated marginal means of PercentDelta by instructional method and ability group.

Gain score means and standard deviations for the gifted only first grade treatment and control group can be found in Table 4.3. Gain results indicate there was not a significant difference in the main effect for instruction treatment, $F(1, 22) = 2.01$, $p>05$, $\eta^2 = .09$. The PercentDelta group means and standard deviations for the gifted only first grade treatment and control group can be found in Table 4.3. PercentDelta results indicate there was a significant main effect for instruction treatment, $F(1, 22) = 5.23$, $p<.05$, $\eta^2 = .22$.

Gain score means and standard deviations for the Scholastic Academy (SA) Only first grade treatment and control group can be found in Table 4.4. Gain results indicate there was not a significant difference in the main effect for instruction treatment, $F(1, 22) = .39$, $p>05$, $\eta^2 = .02$.

Table 4.3.
First Grade Gifted Only Gain and PercentDelta Results

Test	Treatment Group 1T			Control Group 1C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Gain						
Gifted	7.64	9.63	11	3.00	5.00	11
PercentDelta						
Gifted	.5899	.2914	11	.0064	.7911	11

The PercentDelta group means and standard deviations for the Scholastic Academy (SA) first grade treatment and control group can be found in Table 4.4. PercentDelta results indicate there was not a significant main effect for instruction treatment, $F(1, 22) = .87$, $p>.05$, $\eta^2 = .05$.

Table 4.4.
First Grade Scholastic Academy Only Gain and PercentDelta Results

Test	Treatment Group 1T			Control Group 1C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Gain						
SA	10.67	5.98	9	8.44	8.79	9
PercentDelta						
SA	.4208	.2275	9	.2812	.3885	9

Fifth Grade Quantitative Results

Results are presented comparing fifth grade reading achievement under the tutoring/ mentoring intervention versus the control group's traditional reading instruction. Fifth graders

participated in the intervention and acted as tutors and mentors to first grade students. A one-way ANOVA was performed to compare the effectiveness of the method of instruction for the fifth graders. Reading achievement was measured by the *Gates-MacGinitie Reading Tests, Fourth Edition*. The between-group main effect was tested to determine which instructional method was more effective. Eta squared, a measure of explained variance, was computed to determine effect size. Cohen (1988) describes the effect size as measured by Eta squared as ranging from 0 to 1. He describes $\eta^2 = .01$ as small, $\eta^2 = .06$ as medium, and $\eta^2 = .14$ as a large effect size.

Table 4.5 presents the pretest means and standard deviations for Treatment Group 5T and the Control Group 5C. Based on the pretest results, there was no statistically significant difference between groups prior to treatment, $F(1, 42) = .583$, $p > .05$, $\eta^2 = .01$.

Table 4.5 also looks at the posttest means and standard deviations for the treatment and control group. Based on posttest results, there was a significant main effect for instructional treatment, $F(1, 42) = 4.16$, $p < .05$, $\eta^2 = .09$.

Because of the dependent nature of testing over time, gain scores (posttest – pretest) were also examined. Gain score means and standard deviations for the treatment and control group can also be found in Table 4.6. Gain results indicate there was a significant main effect for instruction treatment, $F(1, 42) = 6.75$, $p < .05$, $\eta^2 = .14$.

Gifted populations tend to test at the extreme (high) end of the spectrum on achievement tests. There is also a statistical tendency for random deviation, or regression towards the mean when gifted students take a posttest. These threats, as well as the threat of ceiling effects, leads to the need for test data to be analyzed based on percentage of possible gain (PercentDelta). The PercentDelta group means and standard deviations for the treatment and control group can be found in Table 4.6. PercentDelta results indicate there was a significant main effect for instruction treatment, $F(1, 42) = 5.35$, $p < .05$, $\eta^2 = .11$.

Table 4.5.
Fifth Grade Pretest and Posttest Results

Test	Treatment Group 5T			Control Group 5C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Pretest	71.13	10.11	22	68.45	13.00	22
Posttest	76.09	8.26	22	68.73	14.78	22

Table 4.6.
Fifth Grade Gain and PercentDelta Results

Test	Treatment Group 5T			Control Group 5C		
GMRT-4	*M*	*SD*	*N*	*M*	*SD*	*N*
Gain	4.95	5.36	22	.27	42.68	22
PercentDelta	.1911	.3091	22	-.0623	.4106	22

Social Validity

Social validity, a term first coined by Wolf (1978) refers to the social significance or importance of the goals, the social appropriateness of the procedures, and the social importance of the effects or outcomes (the personal benefit). Following the intervention, surveys were given to both the first grade protégés and the fifth grade mentors to evaluate the social validity for each group.

First Grade Qualitative Results

A survey based on one used for primary-aged children by the Nevada Department of Education (2007) was developed for this study. First grade students were asked to complete a survey following the tutoring and mentoring intervention to determine their impressions of and

satisfaction with the tutoring program. The survey consists of 20 statements; students read and shaded in a smiley face if they agreed or a sad face if they disagreed with the statement.

Statement 1 indicates that most students (90%) enjoy learning with others. Statement 2 gets more specific; it states "I would rather learn about new things by myself." Most (75%) disagreed.

Statements 3, 4, 6, 9, 11, 13, 14, and 19 can be categorized as Satisfaction Questions. All respondents (100%) agreed that their 5th Grade Reading Buddies were nice to them and that they were receptive when the first graders had questions. All respondents agreed that they liked reading to their older Reading Buddies, and most (80%) agreed that they liked when their Reading Buddy read to them. Most (85%) stated they had made new friends during the program, Most (90%) said they liked talking about the story with their Reading Buddy and a similar majority (90%) stated they liked coming to the reading sessions.

Statements 5, 7, 8, 10, 12, and 13 can be classified as Logistical Questions, and each asked about procedural issues of the program. Most (95%) stated that their Reading Buddy helped by asking questions. Similarly, 95% stated that their Reading Buddies allowed the first graders to pick some of the books to be read. A majority of students (75%) stated that the 5th graders let them read out loud. A majority (60%) also agreed that the Reading Buddies took turns with them when reading and 90% stated that they did other activities with their Reading Buddies if they finished reading their book. Statements 12 and 13 discussed arrival time of students during the tutoring program. A majority (75%) of students stated they sometimes worked with a different Reading Buddy if their tutor was late and 70% stated they liked working with different Reading Buddies.

Four statements (15, 16, 17, and 20) can be categorized as Effectiveness Questions. All focus on improving reading skills and all contain the word *better*. Statement 15 shows that 100%

of respondents agreed that they got better at learning and reading new words. All students also agreed that they got better at answering reading questions. Most students (75%) agreed that they got better at reading out loud. Statement 20 indicates that all (100%) respondents felt that they were better readers overall because of the program.

Fifth Grade Likert Scale Question Results

A survey based on one designed by the Washington Reading Corps (2007) was used to assess the social validity of the intervention. After the intervention, fifth grade participants were asked to complete a survey to determine their impressions regarding the implementation and usefulness of the program. Ten questions arranged on a Likert scale ranging from one to five (1 = strongly disagree, 2 = disagree, 3 = slightly agree, 4 = agree, and 5 = strongly agree). Tables 4.7 and 4.8 show the range, mean, and standard deviation, and frequencies for each question.

Questions 1 and 2 of the Cross-Age Tutoring Survey for Fifth Grade Tutors focus on the effectiveness of the training program. Question 1 indicates that most (82%) of the fifth graders agreed or strongly agreed that the training provided during the Breakfast Club helped them become better tutors. Responses to question 2 show that most (82%) of fifth graders felt that they got better at helping other students. Similarly, question 7, showed that most (86%) of respondents agreed or strongly agreed that they can help others learn to read.

Questions 3 and 8 focus on the overall satisfaction of participants during the tutoring program. Question 3 asks whether the protégés seemed to enjoy working with the fifth graders during the tutoring sessions. Most students (86%) agreed or strongly agreed that the protégés enjoyed the tutoring program. Only one respondent (5%) expressed dissatisfaction of her protégé. Question 8 showed that 18 of the 22 (82%) fifth graders agreed or strongly agreed that they would be willing to continue the tutoring program because they enjoy helping others. Again, only one student (5%) showed an unwillingness to continue participating if given the chance.

Table 4.7.
Fifth Grade Survey Results.

Question	*N*	*Range*	*Mean*	*SD*
1. I learned how to help younger students learn to read during "The Breakfast Club" training and during tutoring sessions with my protégé.	22	2-5	4.32	.703
2. After participating in the tutoring sessions, I feel like I got better at helping other students.	22	2-5	4.14	.834
3. My protégé seemed to enjoy working with me during the tutoring sessions.	22	1-5	4.32	.989
4. My protégé often misbehaved and seemed to dislike taking part in the program.	22	1-5	2.18	1.296
5. Arrival time of busses and/or my tardiness or the tardiness of my protégé was a major problem.	22	1-5	2.36	1.465
6. If my protégé was late, I didn't mind helping with other students.	22	3-5	4.50	.452
7. I feel I can help other students learn to read.	22	2-5	4.36	.719
8. I would be willing to continue the tutoring program because I enjoy helping others.	22	2-5	4.50	.913
9. The tutoring program used the appropriate amount of time (number of minutes per day and/or number of days per week).	22	1-5	3.82	1.220
10. As a student, serving as a tutor has helped me improve academically.	22	1-5	3.36	1.195

Questions 4, 5, and 6 focused on day-to-day challenges to the tutoring process. Question 4 focused on protégé behavior during the tutoring sessions. More than half (64%) indicated that protégé misbehavior was not a problem, while 5 of the 22 (23%) indicated that misbehavior was

a slight problem. Only 3 of the 22 (14%) respondents classified behavior as a significant problem.

Question 5 addressed another day-to-day issue. Of those surveyed, about one fourth (26%) agreed or strongly agreed that arrival time of busses and/or my tardiness or the tardiness of my protégé was a major problem. Conversely, 16 of the 22 (73%) saw arrival time as a minor concern. As a follow-up question, students were asked if they minded helping with other students if their protégé was absent or tardy. All respondents expressed a willingness to help, with 20 of 22 (91%) agreeing or strongly agreeing that they were willing to help other students.

Question 9 investigated whether tutors felt that an appropriate amount of time (number of minutes per day and/or number of days per week) was used during the program. It should be noted that fifth graders usually worked with their first grade protégés 4 days per week (Tuesday through Friday). Only when there was an unexpected event that would conflict with tutoring (e.g. field trips or a staff meetings) did we opt to cancel tutoring sessions for the day. During normal sessions, students began to arrive at around 8:10, and sessions lasted until 8:55. Thus, students had up to 45 minutes together. Some students had less if they arrived late because of bus arrival times. Of the 22 fifth graders polled, 16 (70%) stated that the amount of time was appropriate. Four of the 22 (17%) disagreed or strongly disagreed that. the amount of time was appropriate.

The final question in part one focused on the benefits that tutors gained from participation in the tutoring program. Students were asked whether tutoring helped them improve academically. About half (45%) agreed or strongly agreed that serving as a tutor helped them improve academically. A small minority (14%) disagreed or strongly disagreed, and felt that it was of little benefit to them academically. The final group (41%) stated they somewhat agreed that serving as a tutor helped them improve academically.

Table 4.8.
Fifth Grade Survey Results (Frequencies)

Please Check One For Each Question	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree
1. I learned how to help younger students learn to read during "The Breakfast Club" training and during tutoring sessions.	11	8	2	1	0
2. After participating in the tutoring sessions, I feel I got better at helping other students.	8	10	3	1	0
3. My protégé seemed to enjoy working with me during the tutoring sessions.	12	7	2	0	1
4. My protégé often misbehaved and seemed to dislike taking part in the program.	2	1	5	5	8
5. Arrival time of busses and/or my tardiness or the tardiness of my protégé was a major problem.	3	3	1	7	9
6. If my protégé was late, I didn't mind helping with other students.	13	7	2	0	0
7. I feel I can help other students learn to read.	12	7	2	1	0
8. I would be willing to continue the tutoring program because I enjoy helping others.	16	2	3	1	0
9. The tutoring program used the appropriate amount of time (number of minutes per day and/or number of days per week).	8	7	3	3	1
10. As a student, serving as a tutor has helped me improve academically.	3	7	9	1	2

Fifth Grade Open-Ended Question Results/Themes

Page 2 of the Fifth Grade Tutoring Survey consisted of several categorical and open-ended questions to give more depth to the survey. Question 1 indicated that 100% (22 of 22) of students participated in "The Breakfast Club" training sessions.

Question 2 probed further, showing that 10 of 22 (45%) stated that the training sessions definitely helped them improve their ability to tutor students, and 12 of the 22 (55%) stated that felt that the training sessions helped them somewhat to become better tutors.

A comment section followed this. While 10 of the 22 chose to leave this blank, 12 students made comments. Two themes emerged from these responses. Six of the 12 commented on the impact of the training program, while the other six commented on the tutoring program in general. Training program comments included the following:

> "The Breakfast Club was a good way to pay back to the tutors and was a good way for us to learn."
> "Breakfast Club helped a lot by telling us what to do when certain things happen."
> "The Breakfast Club was great. We got drinks and food to eat to help us focus."
> "It helped me to learn how to help other children."
> "I liked it. And it helped me improve Hannah's reading."
> One slightly negative comment was as follows, "It should have started a little later" possibly indicating a problem with arrival time of busses.

All of the comments from question 2 regarding the tutoring program in general were positive. These general comments about the tutoring program included the following:

> "I loved helping my partner learn to read better."
> "Tutoring was extremely fun."
> "The tutoring program was awesome. I want to do it some other time again."
> "My protégé was really nice and understanding. She made my job a lot easier. I thought this tutoring program would be hard, but it wasn't."
> "I really enjoyed tutoring, and it was a really great idea."

One comment from this group indicates some apparent dissatisfaction on the part of a first grader. The fifth grader states: "It affected me very much, but not my partner. She did not like tutoring and now rarely shows up."

The third question in part two was an open-ended question asking "What did you like most about the tutoring program?" Five themes emerged from the responses. These included:

Helping/Working with First Graders Theme. Nine students made comments centered on helping others and/or working with younger students. The following can be grouped under the Helping Theme:

"Helping my protégé learn to read better."
"Knowing that I helped someone."
"I liked that I got to help a younger kid, and I feel good about it."
"I like that we got a chance to help little kids."
"Just being with my buddy and knowing that I'm helping them makes me pretty glad."
"I got to work with younger students. I learned from them and they learned from me."
"Working with Caleb."
"That I got to work with 1st graders."
"What I enjoyed best is to get to work with and help the first graders."

Teaching Theme. Six of the students made comments focusing on teaching others. These include:

"Teaching."
"Having the opportunity to teach younger kids and possibly improve their future."
"Being able to meet and teach younger kids."
"That I got to spend time with my buddy and got to see her improve."
"Seeing the progress that my student made, and seeing him learn to love to read."
"Seeing my protégé learn new stuff."

Reading Theme. Three students discussed reading in their responses. Thus this theme was identified.

"Talking to my partner and reading to her."
"Reading with the protégé."
"On Fridays, when we got to read picture books.

Social Theme. Five students made comments not specifically about reading or the tutoring program. These I have categorized under the category of Social Theme. Three students seemed to focus on the social aspect of the program, while two students mentioned specific social activities. Comments included:

"Pairing up with others and their protégé"
"I liked it most when I walked by my partner and she would say hi."
"The Breakfast Club. Also the kids."

Two students specifically mentioned the field trip that the fifth graders took with the first graders. These comments include:

"I liked going to Alabama with the first graders."
"the field trip."

The fourth open-ended question was "What did you like least about the tutoring program?" Three major themes emerged from the responses.

Misbehavior Theme. Seven students focused on protégé misbehavior in their response to question 4. These include:

"When my protégé would misbehave."
"When my partner didn't always cooperate with me."
"When my protégé didn't pay attention and when he didn't show the enthusiasm."
"Aaron sometimes but rarely misbehaved."
"I least like the tutoring when my protégé acts badly."
"My partner did not like tutoring."
"I don't dislike anything about it, except that Hannah sometimes pulls my hair, but I don't really care. Much."

Sessions Too Short Theme. Five students discussed frustration about the length of time of the sessions being too short. These include:

"It was too short."
" I did not like that it only lasted 45 minutes."
"The small amount of time allotted."
"The time we have to read with our protégé was too short."
"I don't really think I have any objections, I just wish the tutoring program lasted longer."

Inconvenient Time Theme. Four students were concerned about time. Comments were:

"The time that it was at; I kind of missed some school work and time for catching up on missing work."
"The time."
"Missing a little bit of school work, but I didn't mind that much."
"When I got there late and didn't know what was going on."

Miscellaneous Themes. The four remaining comments did not fall into any of the other categories, so I grouped them as miscellaneous comments. They include:

"Partnering up during breakfast club."
"Having to mainly read."
"Nothing. It was great."
"I'm not sure."

The fifth open-ended question from the survey was "How do you think the tutoring program could be improved?" Five themes emerged from the responses.

Give Us More Time Theme. Six students made comments about their desire that the sessions be longer. These include:

"We should have more time to work with our partners."
"If we could spend more time with our protégés."
"We could tutor maybe a bit longer because if a partner comes late, we may have no time to read with them."
"Allowing more time for the program."
"Add 15 additional minutes to the sessions."
"Give us more time."

Change the Time Slot Theme. Five students commented about their desire for the program to be held at a more convenient time. These include:

"Well, for one, it could kind of be moved to another time."
"By having in the afternoon instead of in the morning."
"Move to a better time."
"If it took at a different time period. It's really hard to wake up really early, and car pooling."
"It could have 3 days in a week."

More Tutors/Partners Theme. Four students commented about the desire for more tutors or partners. Possibly this reflects a desire for more collaboration, more socialization, more spontaneity and/or less rigidity. Responses include:

"You can improve it by getting extra tutors."
"Partnering during lessons."

"My partner could show up a lot more and that's about it."
"Work with more students instead of just one. Get into a group and tutor."

Let Us Teach More Subjects Theme. Four students expressed a desire to expand the program to more subjects and/or activities besides reading. They include:

"I think the tutoring program could be improved by letting the 5th graders and 1st graders do more things together like recess."
"I think we could have had more activities other than reading."
"I think the tutoring program should include other subjects such as math, science, social studies, etc."
"Letting there be more subjects to teach."

No Flaws Theme. Three students felt the program was great the way it was. They commented:

"I am not really sure. I didn't see anything wrong with it."
"I think that it is perfect already."
"I think it barely has any flaws."

Question 6 was a categorical question, asking "Would you continue to volunteer with the GREAT Reading Project or any similar tutoring/service activity in the future?" The responses were:

I will definitely volunteer.
I will probably volunteer.
I may or may not volunteer.
I will probably not volunteer.
I will definitely not volunteer.

Eight fifth graders said they would definitely volunteer, Eleven stated they probably would volunteer, one stated he may or may not volunteer, and two stated that they would probably not volunteer. Thus, most students (86%) stated they probably or definitely would participate again if given the opportunity.

Question 7 was a follow-up to question 6 and read "Please share what has influenced your above response and/or any additional comments." Four major themes emerged from the comments.

Love Theme. Six students used the word love in their comments. Responses included:

"Well, I just love kids, and to see how much I help them is just an honor. I really enjoyed it, and would probably do it again."
"I love working with little kids and hope they enjoy working with me."
"I loved the tutoring program. It was a great experience."
"I love working with little kids and seeing them improve is a great joy."

"I love seeing my partner and I like to read."
"I love to help others, but I couldn't be a nurse (just kidding)"

Fun Theme. Five students used the word fun when answering question 7. Their responses included:

"Tutoring was a fun program."
"It is fun to work with little kids."
"This experience was very fun and great. I learned some new things."
"I hope that there could be many more programs like this in the future. I really enjoyed it!"
"I will definitely volunteer for that sort because tutoring is fun and I know I'm helping someone."

Benefits/Social Theme. Two students responded that they got better at working with others. Their responses included:

"I think I have become a bit better with other people, and I have gotten to know more people."
"I learned how to talk to kids younger than me."

Three students commented on the benefits or value of the tutoring program including:

"I think the tutoring program should be continued."
"How they got better reading levels and learned how to read."
"Well, I would volunteer if I could. Like if I had something else at that time then I wouldn't volunteer. So If I had nothing I would DEFINITELY volunteer."

Wasted Time Theme. Two students commented on the negative aspect of the program and its use of valuable time. They include:

"It took away my time."
"It was boring because all we did was read so I'm afraid I'd waste time."

CHAPTER FIVE

DISCUSSION

Discussion of Quantitative Results

The purpose of this study was to determine whether a tutoring and mentoring intervention would have any positive effects for the fifth grade and first grade participants. The null hypothesis for the fifth grade participants is that there would be no statistically significant differences across conditions (experimental treatment vs. control) at post-testing, based on reading achievement scores on the *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4). The null hypothesis was rejected in favor of the tutoring and mentoring condition. Specifically, the GREAT Reading Project treatment condition showed statistically significant reading achievement gains over the control students receiving traditional reading instruction. The effect size for the fifth graders, calculated using eta squared (Cohen, 1988) was large (.18).

The results (see Table 5.1) are even more apparent when examining the changes in Norm Curve Equivalent (NCE), National Percentile Rank (NPR), and Grade Equivalent (GE) scores. According to the manual for scoring and interpretation for the *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4), the results showed an interesting time effect for Treatment Group 5T and Control Group 5C. According to the interpretation tables, the treatment group showed a gain in all areas. The fifth grade treatment group grew 5 NCE points, 4 percentile rank points, and an even more staggering 2.1 years in Grade Equivalent points.

The fifth grade control group, on the other hand, while growing marginally in raw score, had a drop in Norm Curve Equivalent (NCE) and National Percentile Rank (NPR) scores. This is because the NCE and NPR scores are dependent on the time of year students took the test. The final Grade Equivalent (GE) score rose a mere 2 months.

Table 5.1.
Fifth Grade Scores (including Raw, Norm Curve Equivalent, National Percentile Rank, and Grade Equivalent Scores)

Fifth Graders	Treatment/ Control	Raw Score (RS)	Norm Curve Equivalent (NCE)	National Percentile Rank (NPR)	Grade Equivalent (GE)
Pretest	Treatment 5T	71.14	75	88	9.4
Posttest	Treatment 5T	76.09	80	92	11.5
Pretest	Control 5C	68.45	72	85	8.6
Posttest	Control 5C	68.73	71	84	8.8

The results for the first graders are not so straightforward. Overall, both groups (the first graders in the treatment group as well as the first graders in the control group) showed raw score gains when comparing the pretest and posttest scores. The treatment group showed a mean raw score gain of 9 points, compared with a gain of 5.45 for the control group. Statistical analysis using Analysis of Variance (ANOVA) determined that the difference was not statistically significant.

However, additional analysis indicated some interesting results. When using the manual for scoring and interpretation for the *Gates-MacGinitie Reading Tests, Fourth Edition* (GMRT-4), the results showed an interesting time effect that supports a closer look. For example, when comparing each of the groups (the treatment and the control), the norm tables for interpreting raw scores indicate that both groups scored a Norm Curve Equivalent (NCE) score of 78, and a National Percentile Rank (NPR) of 91. On the posttest, however, the NCE and NPR scores went up for the treatment group, but fell for the control group. See the Table 5.2 for additional information. This is true for each group as a whole, and is also true for the disaggregated groups (Scholastic Academy Only and Gifted Only) when compared separately.

The results are even more dramatic when the Grade Equivalent (GE) scores are compared. For example, the mean gains in Grade Equivalent scores for Instructional Method (the

Table 5.2.
First Grade Scores (including Raw, Norm Curve Equivalent, National Percentile Rank, and Grade Equivalent Scores)

All First Graders	Treatment/ Control	Raw Score (RS)	Norm Curve Equivalent (NCE)	National Percentile Rank (NPR)	Grade Equivalent (GE)
Pretest	Treatment 1T	63.45	78	91	1.9
Posttest	Treatment 1T	72.45	80	92	2.4
Pretest	Control 1C	63.20	78	91	1.9
Posttest	Control 1C	68.65	76	89	2.2
Scholastic Academy Only (SA) First Graders	Treatment/ Control	Raw Score (RS)	Norm Curve Equivalent (NCE)	National Percentile Rank (NPR)	Grade Equivalent (GE)
Pretest	Treatment 1T	54.00	69	82	1.6
Posttest	Treatment 1T	64.67	71	84	2.0
Pretest	Control 1C	52.55	68	81	1.6
Posttest	Control 1C	61.00	66	78	1.8
Gifted Only First Graders	Treatment/ Control	Raw Score (RS)	Norm Curve Equivalent (NCE)	National Percentile Rank (NPR)	Grade Equivalent (GE)
Pretest	Treatment 1T	71.20	87	96	2.3
Posttest	Treatment 1T	78.81	93	98	3.9
Pretest	Control 1C	71.90	90	97	2.4
Posttest	Control 1C	74.90	85	94	2.6

treatment and the control groups) indicate that the tutoring group grew an average of 5 months in reading ability, while the traditional reading instruction group grew a mere 3 months. The results are even more impressive when each group is disaggregated. The Scholastic Academy Only students in the tutoring group grew an average of 4 months, while the traditional group of SA students grew only 2 months. Closer analysis of the first grade Scholastic Academy Only student performance indicates that this group can be broken down further into two groups: students with minimal gains (zero to three months growth) and students with significant gains (six months to 1.1 years). The top four regular education students from the latter group showed ending Grade

Equivalent (GE) scores of 2.3, 2.4, 2.6, and 3.1. The mean GE score for these four students is a 2.5, (with a corresponding growth of 7 months). This 2.5 GE score is two months above the pretest mean of the gifted first grade students.

The most surprising result, however, is with the Gifted Only group. The group of first grade gifted students receiving the tutoring intervention grew an average of 1.6 years, while the group of first grade gifted students receiving traditional gifted reading instruction grew an average of 2 months.

Discussion of Qualitative Results

First Grade Survey. Results from the first grade survey indicate that most students were satisfied overall with the tutoring program. Responses ranged from 80-100% on eight different satisfaction questions. All respondents (100%) agreed that their 5th Grade Reading Buddies were nice to them and all agreed that they liked reading to their older Reading Buddies. Most (80%) agreed that they liked when their Reading Buddy read to them, most (85%) stated they had made new friends during the program, most (90%) said they liked coming to the reading sessions and talking about the story with their Reading Buddy.

Results from six logistical questions similarly indicate a high satisfaction rate. Most (95%) first graders stated that their Reading Buddy (their fifth grade mentor) helped by asking questions. Similarly, 95% stated that their Reading Buddies allowed the first graders to pick some of the books to be read, and 90% stated that they did other activities with their Reading Buddies if they finished reading their book.

Of the six logistical questions, there were a few that were marginally lower than the rest. While a majority of first grade students (75%) stated that the 5th graders let them read out loud, and a majority (60%) also agreed that the Reading Buddies took turns with them when reading, these numbers should have been higher, based on program objectives and guidelines.

Observations of tutoring sessions also indicate that the numbers should have been higher. A possible explanation for the discrepancy might be due to the first graders' understanding of "taking turns when reading." While most pairs alternated reading after each page or two, some pairs had the tutor read the entire story one day, and the protégé read it entirely the next day. Thus, while they took turns every other day, they did not take turns on the same day.

Two statements discussed a potential problem during the implementation phase of the program, i.e. arrival time of students during the tutoring program. Results indicate it was an issue, as a majority (75%) of first grade students stated they sometimes worked with a different Reading Buddy if their tutor was late. On a positive note, 70% stated they liked working with different Reading Buddies.

There were four effectiveness questions on the first grade survey. All focus on improving reading skills and all contain the word *better*. Results showed 100% of first grade respondents agreed that they got better at learning and reading new words, that they got better at answering reading questions, and that they felt that they were better readers overall because of the program. The only area where students felt they didn't make as great a gain was in oral reading skills. Yet most students (75%) agreed that they got better at reading out loud.

Fifth Grade Survey. The fifth grade survey was broken down into two different parts. Part one was a set of Likert-scale questions, while part two was a set of open-ended questions. The first two questions from part one discuss the effectiveness of the training program. Both questions indicate that most (82%) of the fifth graders agreed or strongly agreed that the training provided during the Breakfast Club helped them become better tutors and that fifth graders felt they got better at helping other students. An additional question showed that most (86%) of respondents agreed or strongly agreed that they can help others learn to read.

Two questions examining the overall satisfaction of participants during the tutoring

program indicate high satisfaction rates. One question asks whether the protégés seemed to enjoy working with the fifth graders during the tutoring sessions. Most students (86%) agreed or strongly agreed that the protégés enjoyed the tutoring program. Only one respondent (5%) expressed dissatisfaction of their protégé. Another question indicated that 82% of fifth graders agreed or strongly agreed that they would be willing to continue the tutoring program because they enjoy helping others. Again, only one student (5%) showed an unwillingness to continue participating if given the chance.

Three questions focused on logistical challenges during the program. Question 4 focused on protégé behavior during the tutoring sessions. More than half (64%) indicated that protégé misbehavior was not a problem, while 5 of the 22 (23%) indicated that misbehavior was a slight problem. Only 3 of the 22 (14%) respondents classified behavior as a significant problem.

Question 5 addressed the day-to-day issue of arrival time; about one fourth (26%) agreed or strongly agreed that arrival time of busses and/or my tardiness or the tardiness of my protégé was a major problem. Conversely, 16 of the 22 (73%) saw arrival time as a minor concern. Students were also asked if they minded helping with other students if their protégé was absent or tardy. All students expressed a willingness to help, with 20 of 22 (91%) agreeing or strongly agreeing that they were willing to help other students.

One question probed further, asking whether tutors felt that an appropriate amount of time (number of minutes per day and/or number of days per week) was used during the program. Of the 22 fifth graders polled, 16 (70%) stated that the amount of time was appropriate. Four of the 22 (17%) disagreed or strongly disagreed that the amount of time was appropriate. The open-ended questions probed further on this subject and will be discussed in the open-ended discussion section.

The question that gave the most interesting data focused on the benefits tutors gained from participation in the tutoring program. Students were asked whether tutoring helped them improve academically. About half (45%) agreed or strongly agreed that serving as a tutor helped them improve academically. A small minority (14%) disagreed or strongly disagreed, and felt that it was of little benefit to them academically. The final group (41%) stated they somewhat agreed that serving as a tutor helped them improve academically. This is interesting, considering that the tutors showed an average growth of 2.1 years in reading ability.

The open-ended questions provided much more detail about various aspects of the tutoring program. Question two was a categorical question asking about the effectiveness of the training sessions, accompanied by a comment section. While 10 of the 22 chose to leave this blank, 12 students made comments. Two themes emerged from these responses. Six of the 12 commented on the impact of the training program, while the other six commented on the tutoring program in general. Most training program comments (83%) were positive, and all of the comments from question 2 regarding the tutoring program in general were positive.

The third open-ended question asked "What did you like most about the tutoring program?" Four themes emerged from the responses. These included: Helping/Working with First Graders, Teaching, Reading, and Social themes. Nine students commented on helping others and/or working with younger students. Six students made comments focusing on teaching others. Three students discussed reading in their responses, and five students made comments not specifically about reading or the tutoring program. These I have categorized under the category of Social Theme. Three students seemed to focus on the social aspect of the program. Two students specifically mentioned the field trip that the fifth graders took with the first graders. Together, these themes are consistent with the socially altruistic nature of tutoring and mentoring programs.

The fourth open-ended question was "What did you like least about the tutoring program?" Three major themes emerged from the responses. These included: Misbehavior, Sessions Too Short, and Inconvenient Time themes. Seven students focused on protégé misbehavior in their response to question 4. Five students discussed frustration about the length of the sessions being too short. Four students were concerned with the time that the tutoring program was held. These problems were dealt with during the training sessions and strategies were developed to deal with protégé misbehavior. The two issues with time unfortunately were unavoidable, due to the researcher's inability to conduct the sessions at different times because of scheduling conflicts, bus arrival times, and school administrator restrictions.

The fifth open-ended question focused on how the tutoring program could be improved. Many responses mentioned specific topics brought up in the previous question. Five themes emerged from the responses, including: Give Us More Time, Change the Time Slot, More Tutors/Partners, Let Us Teach More Subjects, and No Flaws themes. Six students made comments about their desire that the sessions be longer. Five students commented about their desire for the program to be held at a more convenient time. Four students commented about the desire for more tutors or partners. This might reflect a desire for more collaboration, more socialization, and additional spontaneity and/or less rigidity. Four students expressed a desire to expand the program to more subjects and/or activities besides reading, and three students felt the program was great the way it was. The vast majority of these responses were logical and well thought out. Again, some of the suggestions are not tenable due to restrictions and time conflicts beyond our control. Yet other suggestions, especially the idea of expanding into other content areas, could be an area for future research.

Question 6 was a categorical question asking, "Would you continue to volunteer with the GREAT Reading Project or any similar tutoring/service activity in the future?" Most students

(86%) stated they probably or definitely would participate again if given the opportunity. Question 7 was a follow-up to question 6 and read "Please share what has influenced your above response and/or any additional comments." Pulling key words from the comments, four major themes emerged. These themes are Love, Fun, Benefits/Social, and Wasted Time themes. Six students used the word "love" in their comments. Five students used the word "fun" when answering question 7. Two students responded that they got better at working with others. Three more students commented on the benefits or value of the tutoring program. In all, most students (91%) made positive comments to question 7 regarding their possible participation in future tutoring and mentoring programs. Only two students (9%) commented on the negative aspect of the program and its use of valuable time. The positive nature of the vast majority of these responses indicates strong social validity of the GREAT Reading Project.

Implications

The implications from the GREAT Reading Project center on benefits experienced by the participating groups. First, the mentors in the program benefitted significantly from the program, showing higher reading achievement as compared with their comparison group receiving traditional reading instruction. Next, the protégés or mentees involved in the program improved their reading and literacy skills, as measured by test scores on standardized achievement tests. While the difference in test scores was not statistically significant for the first graders overall, they were statistically significant for the gifted first graders when analyzing scores based on percent of possible gain. In addition, each treatment subgroup (the gifted first graders and the Scholastic Academy first graders) showed marginal gains over the control group of students receiving traditional reading instruction, indicating that the reading program that incorporated tutoring was as good as, if not marginally better than, instruction delivered solely by certified

teachers. Mentors and protégés also benefitted affectively by forming friendships and social bonds that extended beyond the program.

In addition, approximately half of the Scholastic Academy first graders taking part in the intervention showed gains of between 6 months and 1.1 years. This growth is two months above the pretest mean of the gifted first grade students, indicating that the intervention could get students to comparable levels with the gifted first graders.

There are indications that teachers and the school also benefitted. Because of increased student performance, behavior problems such as class disruptions tended to decrease, while time-on-task and academic performance improved.

This research also showed some other positive effects for both mentors and protégés. Students exhibited more confidence and empathy towards others and showed a willingness to help, indicating the promotion of leadership, citizenship, and service learning objectives. These promising findings should provide the impetus for further research in these areas. Thus, when factoring in all of the positive benefits (academic, social, and affective), the use of tutoring programs for gifted and high ability children has merit.

Limitations

Limitations of the study focus primarily on the setting. Since the study examines only self-contained, gifted, public school elementary first and fifth grade mentor pairs within one southern state, generalizability may be limited by program type, educational system, age, grade level, and/or region. Attempts to control other factors (race, gender, SES) have been made in order to improve generalizability.

A second limitation is type of treatment. The program was designed as a before-school tutoring and mentoring reading program. Students took part for 30-45 minutes per session for 3-4 days each week over a 13-week period. Students took part in activities such as partner reading;

students alternated reading aloud, while focusing on word recognition, fluency, and comprehension. Students also worked on summarizing skills by identifying main ideas and supporting details after reading a piece of text a paragraph at a time. Finally, students extended the summarizing process by making and checking predictions with larger sections of text. Generalizability would be limited based on similar treatment, activities, and duration.

A third limitation of this research is the small sample size of gifted students. While a self-contained gifted program provides opportunities to conduct experimental research in a real-world educational setting, the realities of the research setting provided a small population of available gifted students to participate in the research study compared to the number of average ability students available in traditional regular education settings. A way of addressing this limitation would be to expand the program to all five gifted school sites in order to increase the sample size. The program could also incorporate additional grade levels if expansion to different schools was not feasible or practical.

A fourth limitation is the ceiling effect of standardized testing which often affects gifted students. The ceiling effect for the fifth graders was minimized by administering an above-level pre- and posttest. But first grade participants included students from both gifted and regular classrooms. Thus, first graders were administered an on-level test. While this test was appropriate for assessing the students from regular classrooms, the gifted students tended to score near the maximum possible score. Therefore, the gifted students had limited room to show raw score gains on the standardized reading posttest. Out-of-level testing for the gifted first graders could have minimized this ceiling effect.

Recommendations and Future Research

At the completion of the study, the researcher has looked at findings and considered possibilities for new research. A longitudinal study to look for long-term effects may be

warranted. Participants might also be assessed for at-risk characteristics for such behavior as underachievement and perfectionism using extreme or deviant case sampling. If any participants exhibit any of these tendencies, a qualitative case study that continues the mentoring program might be warranted.

Another possible area where research could be done is using case studies of students with potential. Perhaps a method of identifying traits and behavior of high potential students could be developed that could lead to more successful outcomes. It is still hoped that new research will help identify students with gifted potential, so services can be provided to students that need and deserve them.

Continuation of the existing program might be warranted. Examination of the results by the school system could lead to continuation or expansion. If the school system believes the results of this intervention have merit and adequate funding can be secured, there is the potential for turning this program into a longitudinal study, allowing the mentoring program to become a school-wide program. New grade levels could be added each year, beginning when the tutored student (protégé) enters second grade. These original first grade protégés from year one could be paired with new fifth grade mentors. As this takes place, new students in first and fourth could also join the study in year two. In year three, the 3rd graders could make the transition and mentor with kindergarteners, while the other students continue in their next grades. In this way, it becomes a school-wide mentoring program for all gifted grade levels (K-5) by year three. As part of the longitudinal study, qualitative data can be collected to provide supplemental information and to allow for the possibility for a mixed-methods longitudinal case study to be conducted at a later date.

The results of the study were dramatic for the fifth grade tutors. Findings clearly show that tutoring programs help improve reading achievement for upper-elementary gifted children

acting as tutors and mentors. Future research could investigate whether the same results would work in different settings, for different subjects, or for tutoring/mentoring programs with different durations. Additional research might evaluate the use of younger elementary-aged tutors and mentors.

The results for the first graders involved in this study are not so clear-cut. While one of the goals of the study was to identify effective programs that could help improve the achievement of children with potential not yet identified as gifted, an additional goal was to improve the achievement for first graders already evaluated as gifted children. The findings of this study indicate that marginal gains were made for students with potential, but statistically significant gains were made for the gifted children when comparing their improvement using percent of possible gain.

Since the gifted first grade students tended to score very high on the reading pretest used in this study, the utility of the test was compromised as a means of measuring the effectiveness of the intervention because of a ceiling effect. Further research using a higher level assessment instrument would allow researchers to statistically evaluate the intervention more easily.

Conclusion

Previous research has indicated that tutoring and mentoring programs are effective strategies to address the academic and affective needs of a wide variety of students. The results of this study confirm that tutoring and mentoring programs offer some benefits to elementary gifted students and students with potential. While some of the benefits for the first graders seem obvious, others are less apparent due to the limitations of the assessment instrument to show gains beyond a certain point. What is clear is that the students from both first and fifth grade groups grew academically and affectively after participating in the program. Each group also recognized the social validity of the program's goals, procedures, and effects or outcomes. The

conclusion from all of this is that the program was successful and should be replicated using out-of-level assessments. In this way, the threats of regression towards the mean and any ceiling effects can be minimized, allowing the effectiveness of the program to be compared with similar gifted and reading research.

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APPENDIX A

TUTORING SURVEY FOR FIRST GRADE READING BUDDIES

1. I like to learn about new things with others.	☺	☹
2. I would rather learn about new things by myself.	☺	☹
3. My 5th Grade Reading Buddy was nice to me.	☺	☹
4. My 5th Grade Reading Buddy listened to me when I had a question.	☺	☹
5. My 5th Grade Reading Buddy let me read out loud.	☺	☹
6. I liked reading to my 5th Grade Reading Buddy.	☺	☹
7. My 5th Grade Reading Buddy helped by asking me questions.	☺	☹
8. My 5th Grade Reading Buddy took turns with me when we read.	☺	☹
9. I liked when my 5th Grade Reading Buddy read to me.	☺	☹
10. My 5th Grade Reading Buddy let me pick the books to read sometimes.	☺	☹
11. I liked coming to the tutoring sessions.	☺	☹
12. I sometimes worked with a different Reading Buddy if my tutor was late.	☺	☹
13. I liked working with different Reading Buddies.	☺	☹
14. I liked talking about the story with my 5th Grade Reading Buddy.	☺	☹
15. I got better at learning and reading new words.	☺	☹
16. I got better at reading out loud.	☺	☹
17. I got better at answering reading questions.	☺	☹
18. I sometimes did other things with my Reading Buddy after reading a book (like drawing a picture, taking an AR test, talking with my Reading Buddy, or practicing my spelling or vocabulary).	☺	☹
19. I have made new friends during the tutoring program.	☺	☹
20. I think I am a better reader because of things I did with my 5th Grade Reading Buddy.	☺	☹

APPENDIX B

Part 1

CROSS-AGE TUTORING SURVEY FOR FIFTH GRADE TUTORS

Dear Tutor,

Thank you for helping other students learn to read! We would like to know about your time tutoring this year with the GREAT Reading Project. Please help us make our program even better by filling out this survey:

Please Check <u>One</u> For Each Question	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree
1. I learned how to help younger students learn to read during "The Breakfast Club" training and during tutoring sessions with my protégé.					
2. After participating in the tutoring sessions, I feel like I got better at helping other students.					
3. My protégé seemed to enjoy working with me during the tutoring sessions.					
4. My protégé often misbehaved and seemed to dislike taking part in the program.					
5. Arrival time of busses and/or my tardiness or the tardiness of my protégé was a major problem.					
6. If my protégé was late, I didn't mind helping with other students.					
7. I feel I can help other students learn to read.					
8. I would be willing to continue the tutoring program because I enjoy helping others.					
9. The tutoring program used the appropriate amount of time (number of minutes per day and/or number of days per week).					
10. As a student, serving as a tutor has helped me improve academically.					

Part 2

CROSS-AGE TUTORING SURVEY FOR FIFTH GRADE TUTORS

Tutors please answer the following:

1. Did you attend "The Breakfast Club" tutor training sessions?

☐ Yes
☐ No

2. If yes, did the training sessions improve your ability to tutor students?

☐ Yes, definitely ☐ Somewhat ☐ Not at all

Comments:

3. What did you like most about the tutoring program?

4. What did you like least about the tutoring program?

5. How do you think the tutoring program could be improved?

6. Would you continue to volunteer with the GREAT Reading Project or any similar tutoring/service activity in the future? (Please check one).

☐ I will definitely volunteer.
☐ I will probably volunteer.
☐ I may or may not volunteer.
☐ I will probably not volunteer.
☐ I will definitely not volunteer.

7. Please share what has influenced your above response and/or any additional comments:

APPENDIX C

CONSENT FORMS FOR STUDENT PARTICIPATION

Letter to treatment group parents (parents of 5th grade mentors)

Letter to treatment group parents (parents of 2nd grade protégés)

Letter to parents (parents of 2nd and 5th grade control group students)

9/05/2007

Dear Parent:

I am writing to ask your permission for your child to participate in a research project for Louisiana State University. The goal of the project is to learn about the most efficient ways to help students learn. Your child's classroom teacher and I agree that participation in this study would help your child. The title of this project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

If your child participates, he/she will spend about 45 minutes being tested in September. Then, your child will be tested again for another 45 minutes in December. This will help your child's teacher to measure growth in reading ability over time.

Also, your child will take part in a tutoring and mentoring program, where he/she will work with younger students. Your child will take part in a program 3-4 times per week for about 13 weeks, excluding school holidays and state testing. Tutoring sessions will last about 30-45 minutes. We will carefully select a time that will not cause your child to miss important instruction by the teacher. This instruction will help your child improve his or her reading and literacy skills.

At any time, you can decide that you do not want your child to participate anymore. Just let your child's teacher know. Information about your child will be given only to your child's teacher. Reports about the results will not include the names of any students or teachers.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692. If it is okay with you that your child participates in this project, please sign and return this page to your child's teacher.

Sincerely,

Douglas S. Samson
Doctoral Candidate

Sincerely,

Rita R. Culross
Professor

I have been fully informed of the above-described procedures with its possible benefits. I give my permission for the participation of my child, _____ in the study.
I understand that I may withdraw my child at any time.

_____ _____
Parent Signature Date

_____
Parent Name (please print)

9/05/2007

Dear Parent:

I am writing to ask your permission for your child to participate in a research project for Louisiana State University. The goal of the project is to learn about the most efficient ways to help students learn. Your child's classroom teacher and I agree that participation in this study would help your child. The title of this project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

If your child participates, he/she will spend about 45 minutes being tested in September. Then, your child will be tested again for another 45 minutes in December. This will help your child's teacher to measure growth in reading ability over time.

Also, your child will take part in a tutoring and mentoring program, where he/she will work with older students. Your child will take part in a program 3-4 times per week for about 13 weeks, excluding school holidays and state testing. Tutoring sessions will last about 30-45 minutes. We will carefully select a time that will not cause your child to miss important instruction by the teacher. This instruction will help your child improve his or her reading and literacy skills.

At any time, you can decide that you do not want your child to participate anymore. Just let your child's teacher know. Information about your child will be given only to your child's teacher. Reports about the results will not include the names of any students or teachers.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692. If it is okay with you that your child participates in this project, please sign and return this page to your child's teacher.

Sincerely,

Douglas S. Samson
Doctoral Candidate

Sincerely,

Rita R. Culross
Professor

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I understand that I may withdraw my child at any time.

_____ _____
Parent Signature Date

_____
Parent Name (please print)

9/05/2007

Dear Parent:

I am writing to ask your permission for your child to participate in a research project for Louisiana State University. The goal of the project is to learn about the most efficient ways to help students learn. Your child's classroom teacher and I agree that participation in this study would help your child. The title of this project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

If your child participates, he/she will spend about 45 minutes being tested in September. Then, your child will be tested again for another 45 minutes in December. We will carefully select a time that will not cause your child to miss important instruction by the teacher.

The information obtained from these tests will help your child's teacher to measure growth in reading ability over time. It will also help your child's teacher do a better job at teaching reading to your child. Also, your child will receive some additional school supplies like paper, pencils and notebooks for their participation.

At any time, you can decide that you do not want your child to participate anymore. Just let your child's teacher know. Information about your child will be given only to your child's teacher. Reports about the results will not include the names of any students or teachers.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692. If it is okay with you that your child participates in this project, please sign and return this page to your child's teacher.

Sincerely,

Douglas S. Samson
Doctoral Candidate

Sincerely,

Rita R. Culross
Professor

I have been fully informed of the above-described procedures with its possible benefits. I give my permission for the participation of my child, _____ in the study.
I understand that I may withdraw my child at any time.

_____ _____
Parent Signature Date

_____
Parent Name (please print)

APPENDIX D

CHILD ASSENT LETTERS

Student assent letter – Treatment Group (1st and 5th grade students)

Student assent letter – Control Group (1st and 5th grade students)

9/05/2007

Child Assent:
Examiner says the following

I work at LSU. You might know LSU for its football, basketball, or baseball teams. At LSU, we do a lot more than just sports. We also help teachers learn better ways to help children learn.

I would like your help with a special project I am working on. Some of my friends and I will come to your school and do some tests in September and again in December. These tests will take about 45 minutes. They will not count on your report card, but we want you to do your best. The tests might give information to help your teacher to do a good job teaching you and your classmates.

After testing, some fifth graders will be coming to work with the second graders 3-4 times a week during a before-school program, doing some reading and writing activities. These fifth grade reading buddies will show what they have done to succeed, and will help teach the second graders how to be good readers and writers, too. Do you have any questions about what we will be doing?

If you agree to help me, you can stop being in the program at any time if you change your mind about it. Now that I've told you about this special project, do you think this is something that you would like to do with us? Remember if you change your mind at any time, you do not have to keep working with us. You just need to tell us, your teacher, or your mom or dad. If you would like to work with us, please sign your name below.

_____
Student's Name (please print)

_____
Student's Signature

9/05/2007

Child Assent:
Examiner says the following

I work at LSU. You might know LSU for its football, basketball, or baseball teams. At LSU, we do a lot more than just sports. We also help teachers learn better ways to help children learn.

I would like your help with a special project I am working on. Some of my friends and I will come to your school and do some tests in September and again in December. These tests will take about 45 minutes. They will not count on your report card, but we want you to do your best. The tests might give information to help your teacher to do a good job teaching you and your classmates. Do you have any questions about what we will be doing?

If you agree to help me, you can stop being in the program at any time if you change your mind about it. Now that I've told you about this special project, do you think this is something that you would like to do with us? Remember if you change your mind at any time, you do not have to keep working with us. You just need to tell us, your teacher, or your mom or dad. If you would like to work with us, please sign your name below.

_____
Student's Name (please print)

_____
Student's Signature

APPENDIX E

LETTERS TO TEACHERS AND ADMINISTRATORS

Letter to teacher (of 1st and 5th grade control group students)

Letter to teacher (of 1st and 5th grade treatment group students)

Letter to administrator (of 1st and 5th grade control group students)

Letter to administrator (of 1st and 5th grade treatment group students)

9/05/2007

Dear Teacher:

We are writing this letter to ask for your consent to participate in a research project for Louisiana State University. The purpose of the project is to learn about effective ways to improve students' reading performance. The title of the project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

We are very excited about the project and believe you will find it beneficial to both you and your students. As a classroom teacher, we would ask you to do the following:

1. Assist us in obtaining parental permission for student participation in the study. Students chosen will require further assessment at a time convenient for you. This assessment will require approximately 45 minutes in September and 45 minutes in December.
2. Allow students chosen for the intervention to be provided with tutor training by our staff. Tutors will work with protégés for approximately 30-45 minutes 3-4 times per week for approximately 13 weeks. Tutors will also take part in reflection journaling and weekly debriefing conferences.
3. Complete paperwork, including demographic information about you and your students, as well as information about your teaching methods.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692.

Sincerely,

Douglas S. Samson,
Doctoral Candidate

Sincerely,

Rita R. Culross,
Professor

I, _____, agree to participate in the project as outlined above. I understand that I may withdraw from the project at any time.

_____ _____

Signature Date

9/05/2007

Dear Teacher:

We are writing this letter to ask for your consent to participate in a research project for Louisiana State University. The purpose of the project is to learn about effective ways to improve students' reading performance. The title of the project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

We are very excited about the project and believe you will find it beneficial to both you and your students. As a classroom teacher, we would ask you to do the following:

1. Assist us in obtaining parental permission for student participation in the study. Students chosen will require further assessment at a time convenient for you. This assessment will require approximately 45 minutes in September and 45 minutes in December.
2. Allow students chosen for the intervention to be provided with an individual tutor selected and trained by our staff. Instruction would take place for approximately 30-45 minutes 3-4 times per week for approximately 13 weeks.
3. Complete paperwork, including demographic information about you and your students, as well as information about your teaching methods.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692.

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Doctoral Candidate

Sincerely,

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Professor

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_____ _____

Signature Date

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We are very excited about the project and believe you will find it beneficial to both you and your students. As a classroom teacher, we would ask you to do the following:

1. Assist us in obtaining parental permission for student participation in the study. Students chosen will require further assessment at a time convenient for you. This assessment will require approximately 45 minutes in September and 45 minutes in December.
2. Allow students chosen for the control groups to be provided with traditional instruction in the appropriate setting (i.e. regular self-contained or gifted self-contained classrooms).
3. Complete paperwork, including demographic information about you and your students, as well as information about your teaching methods.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692.

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_____ _____

Signature Date

9/05/2007

Dear Administrator:

We are writing this letter to ask for your consent to participate in a research project for Louisiana State University. The purpose of the project is to learn about effective ways to improve students' reading performance. The title of the project is the GREAT Reading Project (Gifted Readers Enhance Academic Talent).

We are very excited about the project and believe you will find it beneficial to both you and your students. As an administrator, we would ask you to do the following:

1. Assist researchers and educators in obtaining parental permission for student participation in the study. Students chosen will require further assessment at a time convenient for you and your teachers. This assessment will require approximately 45 minutes in September and 45 minutes in December.
2. Allow students chosen for the intervention to be provided with reading and literacy enrichment opportunities developed to promote higher achievement. Tutors will work with protégés for approximately 30-45 minutes 3-4 times per week for approximately 13 weeks. The tutoring intervention will not interfere with the teaching of the core curriculum by classroom teachers. Activities will be collaboratively developed by the classroom teachers and the researchers. Activities such as reflection journaling can be integrated into routine literacy assessment if deemed appropriate.
3. Complete paperwork, including demographic information about your school, your teachers, and your students, that might help us to obtain participants and to analyze results of the study.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692.

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4. Assist researchers and educators in obtaining parental permission for student participation in the study. Students chosen will require further assessment at a time convenient for you and your teachers. This assessment will require approximately 45 minutes in September and 45 minutes in December.
5. Allow students chosen for the control groups to be provided with traditional instruction in the appropriate setting (i.e. regular self-contained or gifted self-contained classrooms).
6. Complete paperwork, including demographic information about your school, your teachers, and your students, that might help us to obtain participants and to analyze results of the study.

If you have any questions, please call me at 247-0050, Dr. Rita Culross at 578-1264, or your child's teacher. You may also write or call Dr. Robert C. Mathews, Chairman of LSU's Institutional Review Board, 203 B-1 David Boyd Hall, Baton Rouge, LA 70803. The IRB telephone number is (225) 578-8692.

Sincerely,

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Sincerely,

Rita R. Culross,
Professor

I, _____, agree to participate in the project as outlined above. I understand that I may withdraw from the project at any time.

_____ _____

Signature Date

VITA

Douglas Scott Samson received a Bachelor's degree in Business Management and Administration from Louisiana State University in 1986. He began his teaching career after completing an alternative certification program in Elementary Education at Louisiana State University in 1998.

Mr. Samson began teaching in the Gifted and Talented Program for East Baton Rouge Parish School System in 1998, and soon returned to pursue his Master's degree and gifted certification. He earned his Master's degree in 2002, followed by his Educational Specialist certification as a Reading Specialist in 2005.

Mr. Samson is a member of the National Association for Gifted Children and a member of the Council for Exceptional Children. His research interests are gifted education curriculum development, reading education, and leadership. Mr. Samson has conducted original research in gifted education and reading, and has presented at state and national conferences.

Mr. Samson has served on the Louisiana Systemic Initiatives Program (LaSIP), a statewide leadership initiative promoting comprehensive, standards-based, mathematics, science, and technology reforms through professional development and leadership training for teachers. He also took part in the University Professional Development Project and LINCS Faculty Study Group, receiving training through graduate level coursework where teachers collaboratively developed math curriculum and assessment tools.

Mr. Samson was the recipient of the Brookstown Elementary School Teacher of the Year Award in 2007. He has served as grade level chair, school reading department chairman, and as member of the School Improvement Team. He is currently employed by the East Baton Rouge Parish School System's Gifted and Talented Program as a fifth grade teacher at Buchanan Elementary School in Baton Rouge, Louisiana.